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POPULAR Computing WEEKLY

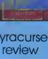
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June 26-July 2 1986

Vol 5 No 26

THIS WEEK

Commodore's handsome prints



Pyracurse review

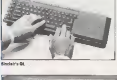
PLUS

New Spectrum comms package

Early contender for Amstrad's PC

Apricots at bargain prices

AMSTRAD BLOCKS QL PLANS



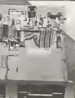
Sinclair's QL

- Amstrad insists that CST has no legal right to produce the Thor variant of the QL
- The company insists that the "intellectual property rights" it bought from Sinclair include those to the QL circuit board
- It will block any attempt to produce machines based on the QL's hardware

Full details below and inside

Amstrad has reacted firmly to

Continued on page 4 ▶



In CST's Thor It won t go, says Amstrad


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26 June – 2 July

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ABC

How to submit articles Articles which are submitted for publication should not be more than 2000 words long. The articles and any accompanying programs should be original. It is breaking the law of copyright to copy programs out of other magazines and submit them here – so please do not be tempted. We cannot guarantee to return your programs – so please do not send your only copy. **Accuracy** *Popular Computing Weekly* cannot accept any responsibility for any errors in programs we publish, although we will always try our best to make sure programs work.

Editorial

In every business, in every age, there have been the cowboys and the incompetents. The Romans, who had a phrase for every occasion, had a phrase for this: Caveat emptor – let the buyer beware.

They knew a thing or two, those Romans.

The cowboys and incompetents are still with us. Sadly, the home computer industry seems to have more than its fair share, particularly in the mail order software field.

In the last few months, a disturbing number of companies have ceased trading – some have gone bankrupt, some have gone into voluntary liquidation, some have simply vanished. In all cases they leave behind them a band of angry, frustrated customers who, at best wait months to get their money back, and at worst receive neither compensation nor the goods they ordered.

In many cases they blame us, because they responded to advertisements in *Popular Computing Weekly*.

Unfortunately, we don't have any easy answers.

If you make your order by credit card, you are afforded some protection under the Consumer Credit Act, but only for goods valued at more than £100 – well and good for printers and computers, but hopeless for software orders.

So unless you can assure yourself that the company you are dealing with is reliable and financially sound, the only sure way to avoid losing money is to leave it in your bank account.

Or make the acquaintance of your friendly, local dealer.

VTX711 in Boots

MODEM HOUSE has pulled off a coup with an exclusive arrangement to sell its new £47 VTX711 comms package through Boots. The pack supports baud rates of 300/300 1200/75, 75/1200 and 1200/1200 (at half duplex), and two wired together can support user to user file transfer at 4800 baud.

Keith Rose of Modem House recommends it for use with the Voyager 7 modem.

Apricot range hits bargain basement

APRICOT COMPUTERS decision to junk its entire current range of microcomputers last week may be bad news for the British micro industry but it's likely to be good news for bargain hunters.

The casualties are the Apricot F1, F2, F10 and Xi models, Apricot's equivalent of the IBM PC range, and the company intends to clear £12.7 million worth of these machines by discounting them heavily. It's not yet certain what sort of price levels the machines will fall to, but the F1, the bottom of the range single 720K drive Apricot, can currently be had for around £650, so any serious discounting would take it down into Amstrad territory.

Apricot previously discounted its Portable machine through Dixons at £499 at a time when prices in general were much higher.

The F1 – this year's bargain?

The company's withdrawl from the lower end of the business market represents one of the most spectacular sea changes in the history of the British industry, as Apricot's earlier success was based on its ability to sell this range, which isn't IBM compatible, into precisely this market. But the low end has been hit by Amstrad and by cheap IBM clones, and this plus a disastrous foray into the US, the closure of its German office and an abortive link-up with the Tandy retail chain has left the Apricot balance sheet looking distinctly tattered.

The final act of surrender for Apricot is the incorporation of IBM compatibility into its 80286 processor Xen. The company will now concentrate on selling this machine into more lucrative markets, but the abandonment of its own "standard" probably marks the demise of the latest serious attempt to challenge the IBM standard.

Amstrad blocks plans for QL

◄ continued from page 1

plans by CST to produce an enhanced version of the QL (see *Popular Computing Weekly* volume five number 21).

CST is confident that it can obtain circuit boards for the machine from one of Sinclair's suppliers, but an Amstrad spokesman last week insisted that "Amstrad has all the intellectual property rights to the QL", and that nobody could therefore produce a machine based on QL hardware.

"CST will have to go to Amstrad for permission to use these critical components," he said, "and that permission will not be granted, so they have a problem."

CST's intention with its machine, the Thor, is to market it initially as a £550 upgrade to the QL incorporating disc drive and interfaces, and then to move on from this by selling complete machines that use QL circuit boards bought in by CST. A number of these will be available from earlier production runs, but if CST is to produce the machine in the longer term it will have to persuade a manufacturer to go back into production with the boards.

It has been suggested that Korean manufacturer Samsung has the rights to manufacture the boards – although Amstrad clearly disputes this – and is willing to resume production for anyone willing to make a commitment to taking 8,000 circuit boards a month. CST won't be able to take anything like that, its production target being an eventual 1,000 a month, but as there isn't currently great demand for the product Samsung can probably be talked down.

The controversy over ownership of the rights to the board does however mirror the arguments over other Sinclair products. When he took over the Sinclair range Alan Sugar said he had the rights to produce and sell all of the machines throughout the world with the exception of Portugal and, possibly, Mexico, where Timex had the rights. Timex Portugal, however, has since arranged to sell 600,000 Sinclair machines to Poland, and appears to have the rights to sell into the Eastern Bloc countries.

The latest news on SID

READERS who participated in the Software International Distribution £5 off software special offer earlier this year, but did not receive the software, should be hearing from the company liquidators shortly.

SID went into receivership three weeks ago and a creditors' meeting was due to be held earlier this week. Temporary liquidator David Reuben couldn't say much about the company's position prior to this meeting, but said steps would be taken to ensure *Popular Computing Weekly* readers would not be out of pocket.

Anyone who sent money and hasn't received software should contact *Popular Computing Weekly* as soon as possible.

Specifications on the new Spectrum PC

SPECTRUM GROUP claims considerable interest from dealers in its recently announced IBM PC compatible machine, and says it is currently taking orders for seven day delivery. The basic machine, which will retail at £690, is a Bondwell 34, which has 640K Ram, twin $5\frac{1}{4}$ inch drives and monochrome monitor, and this price is comparable with the predicted price of the Amstrad PC (£674 for twin discs 256K and colour monitor).

Ram expansion for the Amstrad would account for most of the price difference, and Spectrum's Bondwell comes bundled with the MSDOS operating system which is not likely to be included on the first Amstrads because of cost.

But the pricing of the Spectrum Group and Amstrad machines is by no means as revolutionary as might be thought. Stripped down Far Eastern machines have been available at around the £500-£600 mark for some time now, and the Bondwell range has been stocked by Bristol distributor Barbatan for some time now. When told of the Spectrum machine a Barbatan spokeswoman maintained that her company could match Spectrum's prices.

Meanwhile prices for PC compatibles in the US are falling to around the \$500 (about £330) mark with predictions that they could drop down as far as \$350 (£230) by the end of the year.

This sort of price level, if translated to the UK market, could begin to give the IBM PC standard some credibility as a home machine and could significantly dent sales of the Amstrad PC.

Programmer dies in accident

GAMES PROGRAMMER Paul Barned – one of the team who produced the Amstrad version of Activision's *Mindshadow* – has died at the age of 21.

Paul's death came after a car crash last week.

After having completed *Mindshadow* for Softstone, Paul joined Dalali Software where he was working on the Amstrad conversion of Activision's *Little Computer People*.

Dalali boss Hanan Samara said: "Paul was extremely talented – his death is a tragic loss."

The staff of *Popular Computing Weekly* send their condolences to Paul's family and colleagues.

Acorn's Olivetti

ACORN'S latest micro, a badged version of the Olivetti M19, is to be launched at the Acorn User Show on 24 July. The IBM compatible machine will eventually be available in a number of configurations, but the first model will have monochrome monitor, 256K Ram and twin 360K floppy drives, and will retail at a substantial £1,700.

Acorn intends to aim the machine at the educational market.

Big plans from Mastertronic

MASTERTRONIC is predicting sales of 700 000 units in the United States this year, rising to 1 000 000 in 1987. Frank Herman of Mastertronic isn't willing to put a market share figure on this, but he reckons the US market is worth around ten million units, and this would therefore give the company somewhere around 10 per cent. The company shipped five million units worldwide last year, of which three million were sold in the UK alone.

Herman is optimistic about the company's prospects in the States. Mastertronic picked up three awards at the recent Consumer Electronics Show, and managing director Martin Alper recently moved out to Los Angeles to take charge of the US operation. The company is also planning a number of ST titles for US launch, as Herman feels the machine is now about to take off there.

Micronet focusses on Amstrad

MICRONET has now included a 500 page Amstrad specific database within the service, containing news, hardware and software reviews, softshop and a helpline for Amstrad users.

The Amstrad database differs from other similar setups within Micronet in that routes from it lead more directly into the more business oriented areas of Micronet and Prestel.

Summertime blues

THE SILLY season is well and truly on us, with manufacturers reduced to sending the press free digital clocks (thank you CDS) and inflatable tulips (seeing is believing) in default of hard news. A sister magazine even took delivery of a four foot long inflatable Space Shuttle the other day, prompting questions about the sanity of the sort of gung ho PR outfit that sends out Space Shuttles that you can blow up.

William Poel's cardboard PCW8256 (see last week's issue) was a sign that people were cracking up, but French micro weekly *Hebdogiciel's* pre-Amstrad Show effort was conclusive proof.

Our brethren across the Channel had devoted the front page of their magazine to a review of the Amstrad CPC5512, due for launch "cette semaine en Grande Bretagne." the review was accompanied by a full colour picture of the beast, apparently a 6128 with 512k Ram and a $5\frac{1}{4}$ inch disc drive attached. Twin midi, RS232, mouse, Gem, you name it, it had it – everything bar a shred of reality, that is.

"Eat was ay oax," a *Hebdogiciel* operative admits from his Paris HQ. So now you know.

This also seems a good time for *Popular Computing Weekly* to admit that Sinclair in fact took over Amstrad this year, not vice versa, and that the press has been wantonly suppressing the existence of IBM's Amstrad compatible micro for the past two years.

CENTRONICS has increased the speed of its GLP dot matrix printer, which now produces draft quality at 100 cps and NLQ at 25 cps.

The new version, the GLP II, is small, with print modes including condensed, emphasised and double strike, can be switched between IBM and Epson modes, and is available with Centronics and RS232 interfaces. It will sell at £199.

Details from Centronics, Petersham House, 27 Harrington Road, London SW7 (01 581 1011).

Product News

Companions for Print Shop

THREE PROGRAMS from US software house Broderbund are now available in this country through MGA Microsystems. The programs are the Print Shop Companion and the Print Shop Graphics Library 2, both of them being support packages for the Print Shop electronic publishing package, and Bank Street Speller, a spelling checker for use with Bank Street Writer.

The Companion includes a new graphics editor, a font editor and a border editor, a font editor and a border editor, along with a calendar and the Tile Magic and Creature Maker graphic design utilities. Graphics Library 2 contains designs, symbols and pictures for use with Print Shop. Companion costs £29.99 and is available for the 64/128, Atari 800/130 and Apple II, while Graphics Library costs £29.99 for the 128 and £17.99 for Apple, Atari and 64. Bank Street Speller is £39.99 for the 64/128 and £52.99 for the Apple.

Details from MGA Microsystems, 140 High Street, Tenterden, Kent TN30 6HT (05806 4278).

Advantage for Amstrad users

Advantage, the independent Amstrad user group founded in June 1985, is to expand into the consultancy field. The group is now able to offer advice on hardware and software and is also willing to produce customised applications programs for users.

Details of terms are available from Advantage, 33 Malyns Close, Chinnor, Oxfordshire OX9 4EW.

New Spectrum comms pack

SPECTRE COMMUNICATIONS has put together a package combining Tandata's QMod modem and the Spectre Comms pack to produce a V23 setup that will operate with the Spectrum Plus or 128 at 1200/75 and 1200/1200 baud. The comms pack contains a 16K Rom of driver software for Prestel and Bulletin boards and can handle telsoftware downloading, terminal emulation and protocol adjustments through a series of menus. It costs costs £94 including VAT and is currently on special offer to Micronet users at £91.95 or £57.45 for the comms pack only.

Details from Spectre Communications, The Old School House, Tenter Row, Crosby Ravensworth, Penrith, Cumbria CA10 3JA (09315 362).

Star cuts printer prices

STAR MICRONICS has reduced the prices of its Powertype daisywheel and STX-80 thermal printers in response to "an upsurge in demand." The Powertype comes down £229 from £349, while the STX-80 drops to £79 from £149.

Explaining this odd reversal of the laws of supply and demand (normally extra demand means you can put the price up) Star spokesman Henry Budgett said the company had identified an increase in sales in the home market this year and had reduced the price to stimulate demand further.

Details from Star Micronics, 40 Uxbridge Road, Ealing, London W52 BS (01 840 1800).

Spectrum to Amstrad

SPECTRAM, a disc-based utility program for the Amstrad 664, 6128 and 464, converts Basic programs written for the Sinclair Spectrum to Locomotive Basic. It will also transfer machine code and variables under some circumstances.

It is particularly effective in transferring masterfile and Tasword II files. The program will load Spectrum programs from tape and then sorts it into different file types. Some files are recognised automatically while others need some measure of hand conversion.

Details from Lebochrome, Rue de Fragnée, 173, 4000 Liege, Belgium.

Diary Dates

JUNE

24-26 June
Computer '86
G-Mex Exhibition Centre, Manchester
Details Business and industry computer show. This exhibition was formerly known as the Northern Computer Show.
Price Free entry by business registration
Organiser Reed Exhibitions, 01-643 8040

28 June
Bracknell Computer Show
Coopers Hill Community Centre, Bracknell, Berks.
Details. Software and hardware for the Dragon, Commodore C16, Plus 4 and Vic 20.
Price £1 adults, children and OAPs 50p
Organiser John Penn, 04203 5070

JULY

16-18 July
PC User Show
Olympia, London
Details: Hardware and software for IBM machines and their compatibles.
Organiser EMAP, 01-608 1161

24-27 July
Acorn User Exhibition
Barbican Centre, London
Details Hardware, software and peripherals for the Electron, BBC micro and Master machines.
Trade only 10am-1pm on 24 July
Price £3 adults, £2 children, £1 discount for advance sales.
Organiser Editionscheme 01-349 4667

SEPTEMBER

3-7 September
Personal Computer World Show
Olympia, London
Details Software and hardware for home, educational and business computer users. For the first time that year the show is to be organised in three seperate halls – business, games and education.
Price £2
Organiser Montbuild 01-487 5831

9th September
Official Commodore Computer Show
UMIST, Manchester
Details: A wide range of Commodore hardware, software and peripherals. Formerly the Commodore Horizons show.
Price £3 adults, £2 children, £1 discount for advance booking.
Organiser Database Publications, 061 456 8383

26-28 September
Electron and BBC Micro User Show
UMIST, Manchester
Details Software, hardware and peripherals for the Electron, BBC micro and Master machines. Produced by Acorn.
Price. £3 adults, £2 children, £1 discount for advance booking
Organiser Database Publications, 061 456 8383

OCTOBER

3-5 October
The Amstrad Computer Show
Novotel, London
Details Home and business software and hardware for the Amstrad range of computers
Price £3 adults, £2 children, £1 discount for advanced booking
Organiser: Database Publications, 061 456 8383

30-31 October
Hampshire Computer Fair
Guildhall, Southampton
Details: Business computers and communications.
Price Free entry by business registration.
Organiser Testwood Exhibitions, 0703 31557

NOVEMBER

22 November
The 6809 Christmas Show
Royal Horticultural Hall, Westminster, London
Details Dragon software and peripherals
Price
Organiser Microdeal 0726 6820

Prices, dates and venues of shows can vary, and you are therefore strongly advised to check with the show organiser before attending. *Popular Computing Weekly* cannot accept responsibility for any alterations to show arrangements made by the organiser.


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Letters

Star Letter

Brother bother

Many thanks for the article by Barry Ashfield on connecting the QL to a Brother EP-44 (Vol 5 No 18)

Although I was able to install my typewriter/printer after only one evening a exasperation I did not know how to make it underline – a serious problem in my work

So it was with enormous pleasure that I watched my EP-44 underlining away after I followed Mr Ashfield s directions

What I should like to know however, is whether it is possible to make use of the typewriter s international accent signs Is it simply a matter of having the correct control codes and if so, what are they?

Marjorie Mackintosh
Bletchley
Milton Keynes

Any reader with the answer to this problem?

QL kudos

As a newcomer to computing, may I say how grateful I am for the unequivocal support you continue to give to the poor, abused Sinclair QL machine

The Sinclair empire sold out to Amstrad two days after I bought my QL and I am grateful for whatever support is going Keep up the good work

Dennis Carr
Leeds

The QL will continue to receive regular support from Popular Computing Weekly

ZX problem

Last year I was hit by a car and I was unable to carry on working So I am not very rich and must stay with my ZX81

I am desperately looking for a disc interface for it. There was one two years ago from Analogue Information Systems but I have written to them twice without success

There must be some unused models around now and I ll pay a good price for one if necessary (or offer a 3inch drive for a good used one)

As there is in Gelgium nothing more for the ZX81 I will appreciate any help as you are certainly my last chance

Jean Molte
16 Quai de Biestobroeck
1070 BXL
Belgium

Popular readers to the rescue! A fellow computer user in distress Can any old-time ZX users offer help to Jean?

Yet more Basic

Continuing the Atari ST Basic bugs debate when we tried Mr Hewson s program (Letters, April 24) we always got 36 That was because we all have the final Rom version of TOS The bug is the Ram loaded version (VO 13)

I've never claimed that ST Basic is bug-free or fast If Amstrad s PCW ran ten times as fast in Basic then I suggest we do some tests in C (or any language except Basic)

My criticism of Mr Hewson s programming style was only as an example If storing numbers in string variables was the only bad programming practice Basic encouraged, all would be fine Calling Basic the 'engine' reflects the general state of the British microcomputer industry

Schools magazines and computer manufacturers all expect you to use Basic but most serious work with computers is done in totally different languages Being familiar with computers is important but teaching Basic in schools (and just about everywhere else) is a big mistake

Atari is selling one of the most complete packages around Spending £50 extra on a separate language doesn t sound all that bad when compared to the additional expenses of buying disc drives, monitors and leads (Amstrad excluded)

There is also a new Basic on the way for the ST It ll cost extra money but it ll make Amstrad s PCW look slow

In Atari's case, C is the 'engine' and Basic is the glove compartment

Kristian Rosenvold
Norway

Number theory

I am writing to query Kenn Garroch's reply to G Costello (Peek and Poke May 29)

G Costello would be very ill-advised to buy a 16K computer to store 10,000 number using

Star letters

Every week *Popular Computing Weekly* offers prizes for Star letters The most intelligent, pertinent, helpful, or simply interesting item in our postbag each week will win the writer a free year's supply of exclusive *Popular Computing Weekly* binders.

Here is your chance to clear up that pile of old *Populars* under the bed and file them neatly, so get writing today

Send your thoughts to Letters, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 7PP

Puzzle

Puzzle No 214

Billy Bond owns an Amstrad computer He has discoverd that if he takes the letters A B D M N O R S and T and gives each letter a different digit value the square root of the number denoted by the word AMSTRAD is equal to his name

$$\sqrt{5837056} = 2416$$

AMSTRAD BOND

Similarly Bobby Suck owns an Electron

$$\sqrt{61653904} = 7852$$

ELECTRON SUCK

Note that in each case the substitution of digits for letters is different, but in each example the same letter is represented by the same digit whenever it occurs

David Dovey owns a Commodore Can you find the correct values such that

$$\sqrt{COMMODORE} = DOVEY$$

```
10 FOR START=0 TO 99
20 OUTER=START
30 P=0
40 FOR INNER=0 TO 99
50 N=INNER*100+OUTER
60 T=0
70 IF N/2=INT(N/2)THEN T=1:GOTO 120
80 IF N=3 THEN 120
90 FOR F=3 TO SQR(N)+1 STEP 2
100 IF N/F=INT(N/F)THEN T=1:F=N
110 NEXT F
120 IF T=0 THEN P=P+1
130 OUTER=OUTER-1
140 IF OUTER<0 THEN OUTER=99
150 NEXT INNER
160 PRINT START,P
170 NEXT START
```

Solution to Puzzle 209

When the 25 on the outer ring is adjacent to the zero on the inner ring there will be a maximum of 27 prime numbers displayed

In the program each of the hundred start positions is represented by the start variable in line 10 This is the value which is set adjacent to the zero on the inner disc The program then goes round the disc calculating the values found in each sector

Note that as the inner value increases by one at each step the outer value decreases by one At each step the number arrived at is tested for primality in lines 80 to 120 On each circuit of the discs the total number of primes obtained is printed together with the start position. From this it is easy to find the required values

Winner of Puzzle No 209

The winner is Andrew Osborne of Acklam, Cleveland who will be receiving £10

Rules

The closing date for puzzle **No 214** is **July 22**


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My Access Visa no. is
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Letters

the techniques outlined To do so, he would need at least 50K of memory (five bytes for each number)

Even specifying integer arrays – which not all computers can do – requires two bytes per number, ie. 20k In fact, since the numbers are below 255 they can be stored as a single byte poked into Ram above Ramtop

I hope this clarifies this far from simple matter

Mike Biddell
Tamworth
Staffs

I didn't claim my method was the most efficient – just the simplest. Since there are currently no computers on the market offering less than 32K, the question seemed academic However you are right about integer arrays – to my surprise I would therefore recommend Mr Castello to buy a Commodore 64 which fulfills all the requirements

Dear Dragon

Are you not on speaking terms with your fellow inhabitants *Dragon User*? Or have you just forgotten about a computer called the Dragon?

The Dragon is still very much alive with more software and hardware becoming available every month, yet I have not seen any software reviews related to the Dragon for quite some time

Simon Jones
Harlow
Essex

It's probably because the very much alive *Dragon User* claims all the software for itself

Dragon computer owners are certainly still being catered for by *Dragon User* magazine, which is now available by subscription only from Sunshine Publications, 12-13 Little Newport Street, London WC2H 7PP

Review reaction

I have just read your review of my games in *Popular*, May 1 7 (New releases *Astro Code*)

Firstly I would like to say how glad I am that you have taken the time and trouble to review my collection and I appreciate any constructive criticism of my games that you can make

I'll admit that the games aren't totally original but this in itself should not be a disadvantage How many *Exploding Fists* are there now?

The only part of your review I really object to is the incredible statement that *Luna Rover* has the graphics of a ZX81 game This is a gross understatement and not worthy of your normal critical acclaim

Stewart Green
Halesowen
West Midlands

Group therapy

The National 128 Spectrum User Group has just been formed to promote interest in the 128 and to act as a pressure group

For more details send an SAE to the address below The first edition of *Heatsink* the club magazine, is due in mid-July

N Fadrios
6 Derby Street
Moseley
Ashton-under-Lyne

I am starting a user group for owners of Atari 400/800/XL/XE and ST computers The group will be based in Ireland but I welcome enquiries from anywhere in the world

Any enquirers should enclose a stamped, addressed envelope

Padraig Kearney
Beechgrove Barnakyle
Patrickswell
Co Limerick
Ireland

Bugs and boobs

A couple of mistakes (ahem!) crept into last week's issue

First we managed a total garbling of the Compunet artists The correct credits should have been *Jane's Place* and *Jungle Eye* by Rob Jackson; *Sport Aid* graphics by Hugh Riley music by Graham (Bogg) Marsh

Second, we have been asked to point out that *AMX Pagemaker* was the first page design program available for the BBC not *Fleet Street Editor* as said in the printer supplement

Apologies to all concerned

WD Software

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Commodore's new print power

Commodore's own printers have usually been cheap and cheerful. John Lettice discovers class in the latest

The Commodore MPS 1000 is a welcome change from Commodore's usual line in printers – it's fast, neatly constructed and comes in at a very fair price. It's also an Epson LX80 that's been tinkered about with a bit, which goes most of the way to explaining the last three features, but Commodore is to be congratulated on finally choosing to badge a printer with a bit of class.

The MPS 1000 is equivalent to the LX80, having draft print speed of 100 cps and near letter quality (NLQ) of 20 cps. The major difference, naturally enough, is that it has a Commodore standard serial port, but unnaturally for a Commodore printer it also has a standard Centronics port.

Transforms

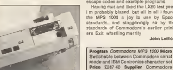
It uses these two by operating in two different modes, selected by a dip switch. In Commodore mode it produces the range of characters and functions, apparently even down to not allowing you to set the print width through escape codes, while in Centronics mode it transforms itself into an IBM compatible printer. The latter isn't as bizarre for the home user as it might sound, as IBM compatible printers will work perfectly happily with pretty well the same range of machines as Epsons will.

You may also recall that Commodore has a PC, and the Amiga has a Centronics port, so there's a certain logic in the extra mode.

When it was first launched I found the LX80 an impressive little printer, and in its new Commodore clothing it's equally pleasant to use. Installation is straightforward, involving clipping on the tractor feed, putting in the ribbon (the only reason I had to check the manual) and attaching a small lid at the front and a paper guide at the back. The last two have a tendency not to stay attached, and their relative flimsiness sits uneasily against the sturdiness of the rest of the design.

One thing I do miss from the LX80 is the ability to switch print mode using combinations of the online, line feed and form feed keys on the front of the machine. This feature has gone out of the window on the MPS 1000, and instead you have to set them through dip switches at the rear of the machine.

Manufacturers, as you may know, make dip switches so small that only pixies can use them, then stick them in a recessed opening in one of the most inaccessible places on the machine, to stop loons like us accidentally switching to a Serbo-Croat character set then phoning up to complain. Whatever, it does mean switching in and out of NLQ and from Commodore to IBM is a lot fiddlier than it should be.


The back panel shows dip switches, Centronics and CBM serial interfaces

Graphics

Aside from draft and NLQ, the machine also sports underline, emphasised, enlarged and reverse printing, and combinations thereof. Three width settings of Pica, Elite and Condensed are also available in IBM mode, and graphics can be handled by the standard methods used by the relevant machines.

The machine's manual is well up to Epson's usual standards, with technical details on the printer and its interfaces included, alongside full documentation of escape codes and example programs.

Having met and liked the LX80 last year I'm probably biased, but all in all I found the MPS 1000 a joy to use by Epson standards, and staggeringly so by the standards of Commodore's earlier printers. Exit whistling merrily.

John Lettice

Above, the 64 character set in high quality mode. Below, sample print styles

This is an example of near letter quality
This is an example of near letter quality
This is an example of draft mode
This is an example of draft mode

Program *Commodore MPS 1000* **Micro** Switchable between Commodore serial mode and IBM Centronics character set **Price** £287.40 **Supplier** Commodore Business Machines, 1 Hunters Road, Weldon, Corby, Northants NN17 1QX (0536 205555)

New star shines

Any new spreadsheet is usually greeted with a yawning 'Yet another spreadsheet', and if it is to interest users it must offer something new and drastic

The name *Vizastar* is not new as it already exists for the Commodore 64 but at the recent Commodore show Viza Software launched the 128 version of the spreadsheet which bears some resemblance to the 64 version but unlike most other 128 programs which have merely had a facelift this program has obviously been written to make full use of the extra features offered by the 128

Vizastar is a package in the true sense of the word The disc and cartridge on which the program comes combine a spreadsheet a database and graphics which can either be used on their own or in combination

Operation is partly menu driven but unfortunately there are quite a few single key commands which do not appear in the menu and perform some vital functions such as print outs which can only be found by a thorough reading of the manual The manual is comprehensive and unlike most other software guides can be read very easily even by a beginner However it lacks a 'Quick Reference section, which would be invaluable as a memory jogger for these hard to remember commands

The Spreadsheet

I think it must be the best spreadsheet I have seen so far on a small micro, having more than 30 000 cells (yes thirty thousand) and all the usual commands A few more functions are also present specifically for program execution The sheet also supports multiple windows in which interactive graphics can be placed I have found it to be very fast – I suspect it uses the 128 s 2Mhz mode – and exceptionally easy to use though only after careful reading of the manual One last point when a model is saved on disc all the printer settings colours right down to the cursor position are saved A nice feature is the ability to load any wordprocessed document in the sheet, and spool/save part of the sheet as a document

The Graphics

Part of the sheet s data can be represented graphically as pie or bar charts, either 3D or flat The process is very simple only needs to specify the range to use for graphics and the rest is done automatically Text can be included with a similar method The graphics are drawn at an incredible speed in the 80 column mode and are of exceptional quality A printout can be obtained with a simple keystroke

The last aspect of *Vizastar* is its ability to run programs Unlike Superbase s language (which is similar to Basic) *Vizastar* is programmed as if it was in manual mode the program as a sequence of keystrokes looks complicated, but in practice is extremely simple yet very powerful

The Database

This section is quite unlike any other database on the market As with other programs several files and databases can be created on the same disc The database can be used on its own but relies heavily on 'spreadsheet techniques for its operation In other words parts of the spreadsheet are used to specify search criteria and other options Data access and transfer is very fast; data can also be transferred very easily between the sheet and the database

The potential advantages of this system are enormous

Conclusion

The one thing that will strike the new user is the fact that all operations graphics, calculations, database and programming are based on spreadsheet methods

Vizastar will appeal to whoever needs a fast and powerful spreadsheet offering similar features to big names such as *Lotus 1-2-3* whilst remaining simple to use for the average mortal The database and graphics constitute an excellent support for the sheet and although alone the database is not best suited for traditional applications such as information retrieval, the sheet/database combination is a powerful mix

Eric Deghaye

Program *Vizastar* **Micro** Commodre 128 with disc **Price** £129 95 **Supplier** Viza software 9 Mansion row Brompton Gillingham Kent

Atari disc doc

Disk Help Utility from Microdeal is designed with the non-programmer in mind and offers the following utilities – check disc repair disc normal format format without erase and salvage disk

Check disc can either give a brief report, *Track Number XX is Faulty* after a few seconds or, after approximately 55 the above report plus *It has X Bad Sectors on it*

Repair disc is for use on corrupted discs which are physically OK The utility reads the disc one track at a time or one sector if any bytes within the track are unreadable replaces the corrupted data with Xs, reformats the track and writes the data back again

Salvage disc is an interesting option allowing you to read as much data as possible from a physically damaged disc and save it onto a new one

Naturally any corrupted program recovered or repaired in this way will probably not run only data files and the like will be usable because all the X s inserted instead of unreadable bytes will be editable

As a free standing utility, *Disk Help* is very low powered and really needs to be either used in conjunction with other utilities such as a disc editor or re-written by Microdeal to provide more options before it can be considered a useful purchase **Duncan Evans**

Program *Disk Help Utility* **Micro** Atari ST **Price** £29 95 **Supplier** Microdeal Box 68 St Austell Cornwall PL25 4YB



After the apocalypse

More churlish souls than I have pointed out that one of the major mind games involved in playing a certain label's products is trying to understand the manual, and *Time Trax* is no exception.

The introduction appears to have been written by someone with a serious problem, veering as it does erratically between the role of Clapham's answer to Mickey Spillane and Neasden's question to Nostrodamus. The rest of the manual is, of course, chock full of information, all of which you have to read simultaneously in order to understand any of it.

Now I've got that off my chest I can tell you *Time Trax* is an arcade adventure a bit like *Nexus* except that Mind Games has thoughtfully arranged a nuclear holocaust before the game's start. The script involves a mad professor (deceased) who told you all about time portals, the battle between Good and Evil and the Eight Minds before deciding to decay in your bomb shelter. For some reason you decide to follow up his suggestion that you save the world from Evil (possibly for the benefit of the ant based intelligent beings bound to replace the somewhat charred human race) and start hopping off through the portals.

These take you to seven time zones, ranging from the Dawn of Man through to the Wilderness, the latter not sounding very hopeful for the success of your quest. Scattered through these zones are the Eight Minds (which is a pretty cheesey total for some 52,000 years) to whom it is your task to return eight lost items.

I'd hazard a guess that Grunt the Barbarian (not much call for minds in 50000BC) wants the battleaxe, but some of the others will take a bit of thought and imagination.

You collect the items by searching filing cabinets, primaeval ooze etc, but are troubled on your quest by a variety of flying baddies who sap your strength. They can however be fended off with a variety of weapons, if you can find them.

There seems to be quite a lot to the game, with a good quantity of nicely designed screens, and although the arcade element can be a bit slow there's enough in the quest side to keep you occupied destroying baddies, casting spells and righting wrongs for some considerable time. Well worth a look.

John Lettice

Program *Time Trax* **Micro** Commodore 64 **Price** £9.95 **Supplier** Mind Games, Liberty House, 222 Regent Street, London W1R 7DB

Double dealing in deadly quest

Somewhere towards the end of last year, I walked into one of the nearby arcades and was struck dumb by a machine called *Gauntlet*. Great hi-res graphics, great sound – but most of all, the fact that it was four player.

The scenario has up to four characters (each with different characterisation) in a true D&D type dungeon adventure – each player competing against each other in a battle for points and experience, but needing to co-operate to survive. Grat stuff but I thought it would be quite some time before anything even vaguely similar would be finding its way onto home computers. Enter *Storm*.

Storm is a £1.99 game from Mastertronic. *Storm* is the nearest thing to *Gauntlet* available outside an arcade yet.

The quest has Prince Storm plus a wizardly sidekick scything their way through the lair of the evil Una, to rescue the obligatory damsel in distress. With control of both characters via keyboard (there is an optional one-player game) this will be a test of the hardware.

But delightfully, it's not all mindless violence, with keys to be collected, puzzles to solve in the classic role-playing tradition.

I've minor reservations about the length of time this one would hold you, but the combination of price and true two player-bility make this an outstanding program.

John Cook

Program *Storm* **Micro** Amstrad **Price** £1.99 **Supplier** Mastertronic, 8-10 Paul St, London EC2

Debbie and the Aztec terrors

Hewson is back with the adventure movie style pioneered in *Avalon* and *Astroclone*.

In the ruins of a Sinu City, Debbie Daphne searches for her lost father accompanied by her brilliant but wimpish boyfriend Roger, drunken reporter O'Donnell who comes in useful when brute strength is called for, and Frozbie the doggie, who has a canine way of uncovering buried artifacts.

It's 'quadruple your pleasure', with you controlling each of the four, as and when their individual skills are necessary. A rotating menu system allows you to access all the options, which include selecting from an inventory of three objects and both solo and lead modes. In the latter other characters will try to follow the one under your control.

In keeping with such high adventure, there are malevolent mummies, savage scorpions and, on the lower levels, some Aztec high tech robots. The city is open plan, which means that you wander without feeling that you're really boxed in by a series of rooms. There are also keys to unlock doors and other useful objects.

All of which makes *Pyracurse* an enjoyably difficult romp, calling for all the dodging skills you can muster. Somehow I didn't think that the programming was all we've come to expect from Hewson though.

Paul Svycarsky

Program *Pyracurse* **Micro** *Spectrum* **Price** £9.95 **Supplier** Hewson, Hewson House, 56b Milton Trading Estate, Milton, OX14 4RX

Old, old story

We all know that the Commodore C16 is severely limited as a games machine by its small memory but this isn t really an excuse for producing budget-quality games at full prices The C16 has good colour fair sound and decent graphics handling and should be able to produce games comparable at least, to the 16K Vic games by luminaries such as Jeff Minter

That s why *Hyperforce* is a disappointment because it tries so hard to be whacky zany and Minteresque with stroboscopic effects great colours zoogie sound and surreal settings but it ends up looking just primitive

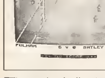
You control a Statron (two lines) which must be moved around the screen to collect pods (little boxes) while avoiding the chamber walls (more lines) There s a time limit which can be extended by collecting Tymers, and bullets which can be used to force back the chamber walls

Hyperforce gave me a headache but precious little excitement Acceptable budget fare maybe but £6 95 is too much

Chris Jenkins

Program *Hyperforce* **Micro** C16-Plus/4 **Price** £6 95 **Supplier** Anolasoft, 68 Long Acre Covent Garden London WC2.

Ups and unders



The press release for Artic's *Rugby Manager* declares that this is a game for men only This has counted against the game in my book for a start In fact on loading and playing, you soon discover it s a game for 'men who haven t played *Football Manager* to exhaustion only'

The salient differences appear to be only the title the list of teams and shape of the goals Oh, and some icons to give a vaguely 1986 look

Obviously, rugby afficionados aren t going to be seen dead playing a football simulation, and vice versa so there may not be too much overlap

What happens is this you select the team you wish to manage which is itself divided into the conventional rugby playing positions You pick the best players (via icons) to improve your overall strength, energy and morale

Then you sit back to watch how the team fares in the next match (this part of the game is far too long) Every other match you get the chance to compete in the John Player Trophy

The strategy section of the game is well-thought out and fun Watching the matches is very tedious However, it's £2 99 and rugby fans may feel that *Football Manager* has held sway for far too long anyway

Christine Erskine

Progam *Rugby Manager* **Micro** Spectrum **Price** £2 99 **Supplier** Artic Computing Main Street, Brandesburton Driffield YO25 8RL

Collect call

In terms of quantity, Atlantis appears to be making an all out assault on budget kings Mastertronic Hardly a week goes by without a new title But in the quality stakes it s a different matter

Luna Atac is a case in point. With the second word's spelling you might expect an Ultimate style game, but this is *Alic*-less Instead it s a platforms game with the role of the ladders taken by teleports

The plot s that old favourite of collecting items before the time runs out and en route avoiding the greeblies and the treacherous floor sections An added attraction here is an anagram puzzle which is completed by accessing computer terminals

Now there's nothing positively wrong with this It s fairly spartan looking and unless I'm going deaf it lacks something in the stereophonic Sensurround department but it s playable enough if you ve nothing better to do considering that it only costs £1 99 The problem is that now you can find better things to do for that meagre sum

Mastertronic is increasingly turning out tapes that betray their cheap price Atlantis will have to realise that fact if it is to challenge the current chart leaders!

John Minson

Program *Luna Atac* **Micro** Spectrum 48K **Price** £1 99 **Supplier** Atlantis Software Limited, 19 Prebend Street, London N1 8PF

A bit dodgy

It all seems desperately familiar Your aim is to guide a little figure Buster through a maze consisting of Kuma assures us 400 rooms dodging the ghosts as you go Script-wise it sounds something of a no-no

But fortunately *Buster Block* includes variations on the theme The ghosts aren t the invulnerable sort, and can be tackled at the expense of a little energy

As an alternative to this you can push several kinds of blocks at the opposition (a bit like *Pengo*) The most basic variety simple zips off at the ghost, stopping when it hits something – if it s a ghost the ghost explodes

Slightly more complex and more engaging is the variety that bounces back and forth a few times This can be fairly hurtful if you're still standing there when it bounces back

The screens themselves are nicely designed and the game itself is medium grade addictive in a moronic sort of way

Stan Syermann

Program *Buster Block* **Micro** Amstrad **Price** £6 95 **Supplier** Kuma Computers, 12 Horseshoe Park, Pangburne, Berks



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Some real Magick for Spectrum owners

Tony Kendle with more cheat routines, including something special for fans of Heavy on the Magick

As I've commented many times we are living in the age of the games conversion – everything gets converted as rapidly as possible to run on the Commodore Spectrum, Amstrad and sometimes BBC with results that sometimes make you wonder why they bothered

No doubt it is a sign of improved programming ability that such copies are possible at all but I was fascinated to receive a new game from Quicksilva for the Spectrum

Entitled *Tantalus* specific mention is made of the fact that it will *not* be converted to any other machine It is a return to the good old Victorian values of writing games that fully exploit the strengths of a given machine

In this particular case the graphics have been designed to fully use the Spectrum's reasonably high resolution and wide colour range and minimise attribute problems and a marvellous job has been done It is programmed by Paul Hargreaves, author of *Glass*, a game that also had superb graphics but which lacked something in the gameplay

Tantalus is a big improvement If you had to label it It's something like a platform game crossed with the *Ziggy Pyramid* game and *Stranpeloop*

You control a very cute Spike Punkold with a choice of six weapon types and six lives The task is predictably mundane – open 32 doors by shooting the locks and then assassinate the deviant human within, but there are something like a thousand rooms of breathtaking graphic detail thousands of evil traps and deadly dangers and untold numbers of very colourful and well designed attacking aliens Not everyone s cup of tea, maybe but I was hooked

On the subject of conversions, Ocean s *Batman* has been released for the Amstrad PCW machine complete with weedy Spectrum-like tune from the beeper I remember when CP software's *3D Clock Chess* first came out, everyone was suitably amazed at seeing the graphics on what was supposed to be a predominantly text CP/M machine But even then I doubted that smooth fast animation could be achieved Congratulations to Ocean for doing it – they should clean up

I promised last week that Chris Allen would have something very special for us and I was pleased to see it arrive in time for this column Standby for an Axil designer for the Spectrum *Heavy On The Magick* The routine will allow you to allocate maximum stamina skill luck and also select the magic level and experience that you want Axil to have

Once set up the way you want Axil will be saved to tape and can be loaded in as Version A When you try to load it in you will get the message Abandoned presumably because no details have been saved about where Axil is or what he carries Despite this the new version of Axil should work in the game

Do not enter values greater then those specified or the game will crash

I've mentioned before that Gargoyle Games finds it very easy to convert its games from Spectrum to Amstrad so it may not take much work for some clever soul to make the necessary adjustments to get this routine working on the CPC version as well Please let us know if you manage it

Chris is working on an infinite stamina etc poke but it is more complicated since it involves getting into the program itself rather than just the saved game

Spiky Harold is the latest budget game from Firebird a sort of hedgehog platform game and Chris has also set some pokes for this game

Merge the Basic loader stop the tape and replace line 4 with this

4 POKE 23341,201 RAND USR 23296

Then add

5 POKE 34813,0 RAND USR 34000

for infinite lives

Or

5 POKE 34808 24 RAND USR 34000

for the nasties to have no effect at all

Then *Run* and play the tape as normal

Finally from Chris comes this very welcome poke for the latest Ultimate game *Pentagram* Designed in the *Knightlore* tradition, this game is particularly fiendish and difficult because of the vast number of attacking monsters which appear in the air like those of *Underwurlde* etc

Anyway just *Merge* the loader and enter *Poke 49917 0* before the last *Rand Usr* statement and you should find things much easier

Some more Spectrum pokes now from Paul Miller Regular readers may remember his infinite lives routine for *Spellbound* Here is an expanded routine which gives you even more control over the game

Enter this and start the tape

1 CLEAR 26060 LOAD " " CODE 16384 RAND USR 23296

when the game has loaded choose from the following

POKE 42170 N (Strength)
POKE 42171 N (Happiness)
POKE 42172 N (Stamina)
POKE 42173 N (Spell Power)
POKE 42174 N (Food Level)
RAND USR 26643 to start

For The Incredible Shrinking Fireman

1 LOAD "" CODE POKE 23339 201 RAND USR 23296 POKE 59505,(N = lives) POKE 23339,195 RAND USR 23339

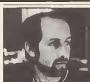
Again, enter the above and start the tape it should load and run

The objects needed for this game are ID Card, Fireman s Axe Skeleton Key Set of Keys Blue Key Yellow Key and Red Key

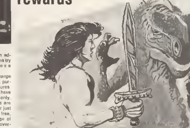
In *Soul of a Robot* Merge the game loader stop the tape then type Poke 23786 201 *Goto* 1 and start the tape again

Once loaded type *Poke* 25812 N (lives) Rand Usr 25500 to start

```
  5 Dim i$(5,2)
 10 For t=0 to 41:Read a:Poke 45032+t,a:Next t
 20 Poke 45074,255:Poke 45101,224:Poke 45102,224
 30 Input "Stamina(1-80)";i$(1)
 40 Input "Skill (1-80)";i$(2)
 50 Input "Luck (1-80)";i$(3)
 60 Input "Magic level (1-9)";i$(4)
 70 Input "Experience (1-99)";i$(5)
 80 For t=1 to 5:If i$(t,2)=" " Then Let i$(t)="0"+i$(t)
 85 Poke 45074+t,Fn x(i$(t)):Next t
 90 Print "Start tape and press any key"
100 Pause 0:Randomize usr 45032:Pause 30:Randomize usr 45048
105 Def Fn x(a$)=16*val(a$(1))+val(a$(2))
110 Data 221,33,1,176,17,17,0,175,205,194,4,201
115 Data 221,33,18,176,17,29,0,62,255,205,194,4,201
120 Data 3,65,88,73,76,32,65,32,32,32,32,0,0,0,0,0,0
```



Mystic runes conceal rewards



So you think you're a Spectrum adventurer to beat all others? Then try this one on for size – and there's a colour monitor for you if you're right!

The *Spectrum Adventure Exchange Club* has been founded for just that purpose exchanging Spectrum adventures that is those adventures that you have finished or finally given up on Text only text/graphics and arcade adventures are all covered so there is something for just about everyone here, membership is free, although there is a handling charge of £1 25 for each exchange (£2.25 for overseas members) Along with the lists, members also receive a monthly newsletter Obviously the more members there are, the more names there will be on the list, and the bigger will be the choice and the better will be the feedback in the form of letters articles and so on I can't stress strongly enough that ventures such as this rely heavily upon the support of members so write off to the SAEC and ask them for details But what about that colour monitor?

Ah yes well SAEC have written a special adventure with their *Quill*, and it is the first person to solve the game and translate the mystic runes given to you at the end of *Castle Thade* that will win a Microvitec 1431 STD RES monitor for their Spectrum (and don't worry, non-members are just as welcome)

The game is the usual stuff about the Council of the Powers of Light sending you to defeat the Powers of Darkness and it is the usual design of white text on blue paper A RAM save feature is available, which is always a big help There's nothing at all original as far as I've seen in the puzzles or situations (there are the obligatory and ubiquitous two mazes to be tackled) and I feel the authors have missed out on a great opportunity to dream up some interesting and exciting moments – there's too much of the *there's nothing unusual here* and at the very start is a large stone that no amount of pushing will move while in the next location is a 'huge boulder' which yields to a shove (and keep at it!) But the prize is the thing and it's a good one

The price of £5 is fair considering the prize though the adventure itself is not worth half that Having said that, the adventure must be hard enough to keep players working hard for their prize and I think prizes are generally a good idea The adventure is only available by mail order from SAEC but you'd better hurry as you must have your solution in SAEC's offices by last post 20 October 1986 SAEC 4 Kilmartin Lane Carluke Lanarkshire ML8 5RT

Of course this being a race for a prize there's no help (not even for reviewers I'm afraid so blank cheques and folded livers will do no good more's the pity, though you can try!) but there is help for adventurers from another source

Mr J R Barnsley has written to me bewailing the lack of response that he has had from people advertising in the Helpline I have replied to literally dozens of your readers in the Helpline on as many adventures (with help in their problems) but have not received a thing in exchange I do not expect a kiss or shake of the hand

ADVENTURE HELPLINE

Heavy on the Magick on Spectrum What is Habak's last name? And what is the great sign I in tree? Miss M R Dale 9 Bedford Street, Scarborough N Yorks YO11 1DQ

Pirate Adventure on Commodore Plus/4. I can I get past the crocodiles in the cave to get to the door Help! Paul Henshaw 274 Greenside Lane Droylsden Manchester M35 7SL.

Sherlock on Spectrum How do you stop Lestrade arresting Ffoulkes? Plus any other help Keith Ellis, 448 Howlands, Welwyn Garden City Hertfordshire AL7 4HP

Heavy on the Magick on Spectrum What does the sign mean? How do I pass the sluga through the iron door? Ray Watson 12 Holgate Mount Ward Green Barnsley 3 Yorks, S70 6SR

The Pawn on QL How do I open the guru's cupboard or get past the alchemists or move the wheelbarrow? Rhys Clement-Evans the Rookings Out Lane, Woolton, Liverpool L25 5NN

The Hobbit on Spectrum How do you get the ring? I seem to spend hours running aroudn the dungeon trying to find it OK CM Purvis HMS Osprey C13 Mess Porland Dorest

Castle of Terror on Commodore 64 Help me to kill the count! I think I have to break the spear – but how? Len Shuttleworth, 12 Richborough Close, Orpington, Kent BR5 3TQ

Ghost Town on C16/Plus/4. What is the code number which you ask for after you touch the bottle on screen 17? Chris 186 Gossops Drive, Gossops Green Crawley, Sussex RH11 8LD

Pilgrim on Commodore 64 How do you open the cellar door? What do you do at the cliff? How do you cure radiation? Stuart Ronayne 9 Turpyn Court, North Arbury Cambridge CB4 2RN.

The Hobbit on Spectrum. Has anyone got a map? Mark Strain 91 Longmuirhead Road, Auchinloch Kirkintilloch G66 5DJ

Gremlins on Spectrum. How do you get the gremlins into the vent system and how do you kill them? Mark Strain, 91 Longmuirhead Road, Auchinloch Kirkintilloch G66 5DJ

but an acknowledgement or even a *further* request would be appreciated I have solved and mapped several adventures and have progressed quite far in many more For just the cost of photocopying and an SAE I will supply anyone with the full solution and maps 10p per page would cover the copying, but of course different adventures require a different number of sheets (*Lords of Adventure* for example takes up 12 pages, thus £1 20 would cover the whole solution whereas *The Time Machine* would only cost 20p

I agree that many adventurers seem to want to take and aren t really interested in giving anything, but I think that 10p for a page of much-needed help is one of the best offers you ll find this year Mr Barnsley has a long list of completed adventures, including *Heroes of Karn Terrormolics Bored of the Rings Neverending Story* and many of the Artic Adventure International and Level 9 games as well as some of the more recent things like *Redhawk* and *Very Big Cave* (and something called *ZZZZ* is that a description or a title!?) and if the general quality of the maps and solutions is as good as that of *The Lords of Time* that he sent to me then you are in for a treat

Write to J R Barnsley at 32 Merrivale Road, Rising Brook, Stafford, Staffs ST17 9EB not forgetting the large SAE.

Another kind of help comes from Don Macleod If you have a long memory the name will be familiar because of Don's Commodore database program which he offered along with an index of Corner subjects That program was only of use to Commodore disc owners, and Don feels now that others might want to take advantage of his generosity If you re like me and spend hours searching through the back copies of Popular looking for the address of someone offering help in a particular adventure then read on

Don is prepared to offer yearly indices to subjects in the Corner in the form of printouts one year's worth is 50p plus 17p stamp two years 80p plus the stamp and three years £1 00 plus the stamp Not only that but if you include two SAEs, you will get two free six-monthly updates – again superb value and if you re a Commodore disc owner ask Don for details of his program 35 Old Evanton Road Dingwall Ross-shire IV15 9RB

Traditional

From value of one kind to another – you ll remember that some time ago I mentioned the 10-Adventure pack from Central Solutions Now the second volume has been released and like the first all the adventures contained in the latest pack are written with the aid of *The Quill* five text and five graphic (*Illustrat*ed and otherwise) Like the first there are good things here, and some not so good, with a good mix of traditional ' Save-the Princess ', explore the castle and fight the dragons and some rather more novel scenarios (including a strangely familiar tale of a scientist of reduced circumstances!)

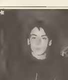
Dave Watson whose *Tangled Tale* I was impressed with in Volume I appears again with no less than three of the graphic adventures the best of which (on first impressions anyway) is a *Sherlock* like New Scotland Yard yarn with you in the role of a police chief attempting to stop the assasination of the monarch G Fong contributes two adventures one graphic and one text and one the sequel of the other They re a bit loquacious attempting to create atmosphere by shear word count but if you remember Dr Dolittle things should become easier!

Generally the presentation is better in this new volume with good title-screens good graphics the obligatory spelling and grammar mistakes (but not too many this time) and the occasional re-designed character set – Simon Allan who also contributes two adventures shows a particular flair for presentation, and I look forward to seeing more from him These adventures are all of a pre-Patch vintage which means that there is no RAMsave

At £5 95 which includes a free C15 tape for saves the package is great value – even though none of the adventures is particularly stunning there is enough here to keep even jaundiced players going for a while

Central Solutions, 500 Chesham House, 150 Regent Street London W1R 5FA

Tony Bridge



Soft touch

David Wallin looks at comms software – for any machine

A few weeks ago I printed the names of just a few pieces of communication software. Because of letters asking for information on comms software for many machines, not just home micros but small business micros as well I've made up a list of a number of different pieces for different machines.

As you can see it is very comprehensive and as far as I know all details are correct. No Amiga software has yet been priced.

Emulations

More and more software packages offer different emulations so a definition of emulation is called for.

Emulation is where your computer's screen acts like another kind of screen. The most common example is viewdata. Very few computers have a MODE 7/Teletext/viewdata mode and for access to viewdata boards this has to be simulated in software.

ASCII is not really an emulation as most computers have an ASCII screen as standard. ASCII is explained over the next 2 weeks.

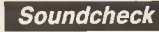
The following are the 7 most common emulations:

ANSI – BT Gold
ANSII VT 100 – University mainframes/Open University
ASCII – Standard Bulletin Board screen
Hazeltine – Industries and Universities
Viewdata 40 – Prestel Micronet and Viewdata Bulletin Boards 40 column screen
Viewdata 80 – A new version of Viewdata 40. It has an 80 column screen. Eg Casper

If you have any queries, tips or comments to make about any aspect of micro communications David Wallin would love to hear from you.

Write to him at *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 7PP.

Micro (or D/S)	Name	Price	Format	Viewdata	ASCII	Supplier
Amstrad CPC	Commstar	£50	ROM/Disc	Yes	Yes	Pace
	Micro Pack	£100	ROM	Yes	Yes	Modem House
	Mini Office II	£15	Tape	No	Yes	Database Publications
Amstrad PCW	Chit Chat E Mail	£70	Disc	No	Yes	SageSoft
	Chit Chat View	£70	Disc	Yes	No	SageSoft
	Chit Chat Combo	£100	Disc	Yes	Yes	SageSoft
	StarCom	£50	Disc	Yes	Yes	New Star
	8256UKM7	Free!	Download	No	Yes	CBS SW (Public Domain)
Apple II, IIe, IIc & II+	Apple Access II	£50	Disc	No	Yes	Apple
	ASCII Express	£90	Disc	No	Yes	United Software
	Data Highway	£75	Disc	Yes	Yes	Pace
	Jeeves	£35	Disc	No	Yes	PBI
Some require	Micropack	£75	Disc	Yes	Yes	Tandata
128K and	Person to-Person	£45	Disc	No	Yes	Trotec
some only	Term Exec	£65	Disc	No	Yes	Exec Software
48K	Micronet Term	£50	Disc	Yes	Yes	Modem House
	Terminus	£80	Disc	No	Yes	Quark
	Vicom	£75	Disc	Yes	Yes	AM Technology
	Z Term	£150	Disc	No	Yes	United Software
Atari (8-bit)	Backtalk	£20	Disc	No	Yes	Antic
	Hyperterm	£60	Disc	Partial	Yes	Modem House
	HomePak	£35	Disc	No	Yes	Ariolasoft
	Prestel Cart	£60	Cartridge	Yes	No	Modem House
	Mini Office II	£15	Tape	No	Yes	Database
	Mini Office II	£20	Disc	No	Yes	Publications
	ViewTerm	£60	Disc	Yes	Yes	Miracle Technology
Atari ST	K-Com	£50	Disc	No	Yes	Kuma
	Mi Term	£30	Disc	No	Yes	Michtron
	PC Intercom	£130	Disc	No	Yes	Unicorn
	ST Term	Free!	Disc	No	Yes	Public Domain
BBC Micro	Commstar	£35	ROM	Yes	Yes	Pace
	Commsoft	£30	ROM	Yes	Yes	Modem House
	Communicator	£70	ROM	No	Yes	Computer Concepts
	CommuniTel	£350	ROM	Yes	No	CommuniTel Ltd
	Linemaster	£10	ROM	Yes	Yes	Solidisk Technology
	Micronet ROM	£15	ROM	Yes	No	Modem House
	Mini Office II	£15	Tape	No	Yes	Database
	Mini Office II	20	Disc	No	Yes	Publications
	Termi II	£35	ROM	No	Yes	Computer Concepts
	Terminal S/ware	£5	Listing	No	Yes	Longmans
	Termulator	£35	ROM	No	Yes	Acornsoft
	Tango micropack	£20	Tape	Yes	No	Tandata
	Tango Add Pac	£30	Tape	No	Yes	Tandata
	Tan ROM	£45	ROM	Yes	Yes	Tandata
Commodore 64 and 128/128D	Mustang	£50	Cartridge	Yes	Yes	Modem House
	CBM 64 micropack	£50	Cartridge	Yes	Yes	Modem House
	CBM 64 terminal		Disc	No	Yes	Tandata
	Micronet Cart	£50	Cartridge	Yes	Partial	Modem House
CP/M	BSTAM	£160	Disc	No	No	Dyron software
	Crosstalk	£165	Disc	No	Yes	Microstuff
	View-Tex	Varies	Disc	Yes	Yes	Tandata
Dragon 32/64	Prestel Cart	£35	Cartridge	Yes	No	Modem House
	Dragon micropack	£45	Cartridge	Yes*	Yes	Tandata
Electron	Commstar	£150	ROM	Yes	Yes	Pace
Macintosh	MacTEP	Free!	Disc	No	Yes	Public Domain
	Vicom	£150	Disc	Yes	Yes	AM Technology
MSX	Prestel Cart.	£70	CArtridge	Yes	No	Modem House
Vic 20	Micropack	£20	Tape	Yes	No	Tandata
QL	Q-Con	£90	Disc	Yes	Yes	Tandata
Spectrum 48K	Micropack	£45	Cartridge	Yes	Yes	Tandata
	VTX 5000 modem	£70	In modem	Yes	No	Modem House
	VTX user-to user	£4	Tape	No	No	Modem House
	VTX PSS comms	£7	Tape	No	Yes	Modem House
Spectrum 128K	VTX7-11	£40	Tape	Yes	Yes	Modem House



64 sounds and MSX miscellany

More on Colleen's music series plus developments in MSX, from Mark Jenkins

Last week we looked at the Colleen music compendium for the Commodore 64, and this week we're looking at the final sections of this powerful package and examining the music potential of MSX computers

The Colleen Compendium has several sections including a Music Theory Tutor a Guitar Tutor, a SID (sound) Chip Programming Tutor a Playalong section (using the excellent clip-on Music Maker keyboard if you like), a Drum Machine and finally the Sound Creator Combiner and Effects Master sections we're looking at here At only £29 95 the package represents very good value for money for the musical novice or even for the more advanced user

The final three sections are the most advanced of the whole program *The Creator* opens with a display including a keyboard, icon-style options for Play disc Loading and other functions and various Tempo and other controls which in the Compose mode allow you to enter notes and timings using a joystick for one voice at a time Sections can be copied and deleted and you can create your own sounds with waveshape vibrato sweep and filtering characteristics on another display

Playing it back

Once a pattern has been composed you can play back any combination of voices up to 2100 notes and then *Save To Edit* (for part of a file while you're working on it) or *Save Final* (to create a machine code music file for use within another machine code or Basic program)

Music can be played simultaneously with your own game program using interrupts and an excellent demonstration piece (*I Hear You Now* by Jon and Vangelis) gives some idea of the possibilities of *The Creator*

Colleen's *Creater*

The Combiner is another machine code-based routine which allows you to call up any of two or three tunes from memory instantaneously – it's only available on the disc version

The screen display contains all the information necessary to load your own *Creator* files into a program

Lastly the *Effects Master* allows you to create Basic data statements which again can become part of another program for adding sound effects to games or any other routines To create an effect six parameters have to be entered in the form *Sys52700 A B C D E F* which refer to (A) Start Frequency (B) Step Amount (C) Effect Direction (stationary up down or oscillate) (D) Time (E) Waveform and (F) Repetitions



Yamaha kit – use it with other MSX machines

Examples are given to create Telephone Alarm Helicopter Phaser and Machine Gun sounds

Altogether, though the Colleen system is highly versatile and easy to use At the current price it's hard to resist for a wide variety of music applications

For further details contact Colleen Ltd, 18 Bishop St, Penygraig CF40 1PQ (Tel 0443 434846)

On to our very first reader's letter from Mr Leach of Milton Keynes He has a Canon V-20 64k MSX and wants to know what musical packages are available for it.

As you point out Mr Leach there are a few composer packages about for the built-in sound chips of the MSX range such as *Music Mentor PSG Musicomposer* and *Odyssey K*, but there has been little in the way of hardware until recently (Toshiba's bargain HX MU901 keyboard/synth module reviewed in the June 5th issue is an exception) but now it is possible to turn an MSX micro into both a MIDI sequencer and an FM synthesiser/composer

The *Composer* interface and software from Proteus will allow you to compose up to 16 simultaneous polyphonic channels of music from a MIDI keyboard with comprehensive editing and a vast memory capacity, so if you want to use your MSX as a controller for inexpensive MIDI synths such as the programmable Casio CZ-101 (which can produce eight-note chords or four simultaneous monophonic sounds) this is the one to go for

Other MSX

Until recently, Yamaha's CX5M has been the only MSX computer capable of taking advantage of the company's FM synthesis tone module but with the release of an updated tone module (SGF-05), Yamaha have also released details of how to interface it to other MSX computers Two-port micros such as the Canon and Sony are ideal and all you have to do is etch out the appropriate strips on a piece of board to connect the module to the cartridge port

Yamaha have aspect sheets available which describe the materials needed and give a complete list of order codes from Maplin electronics, where they total under £5 (even less elsewhere)

Having an FM module (around £100) and software such as *Music Macro II* (a compositional language) *MIDI Recorder* or *FM Music Composer* allows your MSX micro to become a very powerful MIDI synth which will play massive sequences with eight different monophonic voices

Rittor Music also has a wide variety of MSX based software largely using the built-in voices and mostly for the educational market Worth checking out though

Contact addresses Martin Tennant/X Series Users Club, Yamaha UK Mount Avenue Bletchley Milton Keynes MK1 1JE (Tel 0908 71771)
Rittor Music 24 Broomgrove Gardens Edgware Middx (Tel 01-952 5302)
Proteus/Electro Music Research 14 Mount Close Wickford Essex (Tel 0702 335747)

If you have any queries or tips for this column, please write to Mark Jenkins at *Popular Computing Weekly* 12-13 Little Newport Street London WC2H 7PP Mark would also welcome examples of your own music on audio or program tape, or disc

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Screen Effects

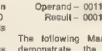
by Keith Irving

Machine Code programmers often have to ensure that the value held in a particular byte of memory is kept within certain limits. Bits that are not needed can be 'masked out' of the byte by using the logical *And* instruction.

The byte in question has to be transferred to the Accumulator (Register A), then the *And* instruction compares a number (the operand), with the contents of the Accumulator, bit by bit. If a bit position in either the Accumulator or the operand is 0 then that bit position in the Accumulator is reset (ie 0).

On the other hand, if both bit positions are 1 then that bit position in the Accumulator is set (ie 1). The result can then be transferred back to its original Register.

As an example, imagine that a given byte must not hold a number greater than 60 or less than four. The Accumulator actually holds the number 217, so the instruction *And 60* must be used to mask out the unwanted bits.



```
Accumulator – 11011001 = 217
    Operand – 00111100 =  60
     Result – 00011000 =  24
```

The following Machine Code routines demonstrate the versatility of the instruction.

In both programs the Machine Code is poked into the printer buffer and is called with *Randomize Usr 23296* however the code is completely relocatable so it can be poked higher up into RAM if so desired. I have also included Assembly listings for those wishing to delve a little deeper.

Listing One

The routine in Listing One works on the top 22 lines of the Attribute File and swaps over the values of *Paper* and *Ink*. In monochrome (eg *Blue Ink White Paper*) a 'negative' image of the screen is created. More interesting effects can be seen when mixed colours are used on the screen. Either way, the state of *Bright* and *Flash* remains unchanged.

Each byte is taken in turn. First of all bits six and seven (*Bright* and *Flash*) are preserved. *And 192* masks out bits zero to five, leaving only the state of bits six and seven intact. *And 56* masks out bits zero to two plus bits six and seven leaving bits three to five (*Paper* colour) intact. All the bits are then put back together again in the same memory address.

The Machine Code can be saved for later use in your own programs with *Save name 'Code 23296 37*

Listing Two

The routine in Listing Two provides a slower and more spectacular way of clearing the screen. The Attribute File is filled with the value held in the System Variable *Border* so that *Border* and *Paper* colours match. The *And* instruction then masks out each bit of every byte in the Display File from bit seven to bit zero until the screen is cleared. The effect is a gradual fade out.

Save the Machine Code with *Save name Code 23296 48*

Try both of these routines now and see just how effective they could be when used from within your own programs.

LISTING 1.

```
  5 REM M/C INK AND PAPER COLOUR REVERSE ROUTINE
 10 REM POKE MACHINE CODE INTO PRINTER BUFFER
 20 FOR C=23296 TO 23296+36: REM 37 BYTES IN ALL
 30 READ D: POKE C,D: NEXT C
 40 DATA 243, 33, 0, 88, 1, 192, 2, 126, 245, 230, 192, 87, 241,
        245, 230, 7, 7, 7, 7, 95, 241, 230, 56, 15, 15, 15,
        130, 131, 119, 35, 11, 120, 177, 32, 228, 251, 201
 50 REM DEMONSTRATION
 60 BORDER 4: PAPER 0: INK 4: CLS
 70 FOR R=5 TO 70 STEP 5
 80 CIRCLE 127,87,R
 90 NEXT R
100 PRINT AT 21,0;"PRESS A KEY TO RUN MACHINE CODE.
110 PAUSE 0
120 RANDOMIZE USR 23296
130 GO TO 110
```

LISTING 2.

```
  5 REM MACHINE CODE SCREEN FADE OUT ROUTINE
 10 REM POKE MACHINE CODE INTO PRINTER BUFFER
 20 FOR C=23296 TO 23296+47: REM 48 BYTES
 30 READ D: POKE C,D: NEXT C
 40 DATA 58, 72, 92, 33, 0, 88, 119, 17, 1, 88, 1, 255, 2, 237,
        176, 58, 143, 92, 50, 141, 92, 22, 127, 6, 0, 197, 33,
        0, 64, 1, 0, 24, 126, 162, 119, 35, 11, 120, 177, 32,
        247, 122, 15, 87, 193, 16, 234, 201
 50 REM DEMONSTRATION
 60 FOR B=0 TO 7
 70 BORDER B
 80 FOR F=0 TO 19
 90 PRINT AT F,0;"12345678901234567890123456789012"
100 NEXT F
110 PRINT AT 21,0;"PRESS A KEY TO RUN MACHINE CODE.
120 PAUSE 0
130 RANDOMIZE USR 23296
140 PRINT AT 21,3;"PRESS ANY KEY TO CONTINUE."
150 PAUSE 0
160 NEXT B
170 GO TO 60
```

```
ASSEMBLY LISTING 1A

        ORG  $5B00     ; 23296 (Printer Buffer)

        DI             ; Disable Interrupts
        LD   HL,$5800  ; 22528 (start of Attr [illegible]
        LD   BC,$02C0  ; 704 (Attr. Count) [illegible]
NEXT    LD   A,(HL)    ; Fetch an Attr byte [illegible]
        PUSH AF        ; Save it
        AND  $C0       ; Mask out Bits 0 to 5 [illegible]
        LD   D,A       ; and FLASH, then store
        POP  AF        ; Restore Byte
        PUSH AF        ; Save it again
        AND  $07       ; Mask out Bits 3 to 7 [illegible]
        RLCA           ; then multiply the [illegible]
        RLCA           ; the Accumulator now [illegible]
        RLCA           ; colour
        LD   E,A       ; Store it
        POP  AF        ; Restore Byte
        AND  $38       ; Mask out Bits 0 to 2 [illegible]
        RRCA           ; preserve the old PAPER colour
        RRCA           ; [illegible]
        RRCA           ; [illegible] holds the new INK [illegible]
        ADD  A,D       ; Add BRIGHT and FLASH [illegible]
        ADD  A,E       ; Add PAPER to [illegible]
        LD   (HL),A    ; Now change the Attr byte
        INC  HL        ; Move on to the next Byte
        DEC  BC        ; Reduce the count
        LD   A,B       ;
        OR   C         ; Is the count 0 yet?
        JR   NZ,NEXT   ; No, then repeat the process
        EI             ; Yes, then Enable Interrupts
        RET            ; Return to BASIC
```

```
ASSEMBLY LISTING 2A

        ORG  $5B00     ; 23296 (Printer Buffer)

        LD   A,($5C48) ; Fetch data from address 23624 BORDCR
        LD   HL,$5800  ; 22528 (First Byte in Attribute File)
        LD   (HL),A    ; Change the Attribute (Source).
        LD   DE,$5801  ; 22529 (Destination).
        LD   BC,$02FF  ; 767 (Byte count)
        LDIR           ; Fill the whole Attribute File.
        LD   ($5C8F),A ; Change System Variables "ATTR T" and
        LD   ($5C8D),A ; "ATTR P"
        LD   B,$7F     ; 127 (First mask operand)
        LD   B,$08     ; Count   8 Bits to clear in each Byte.
PROG    PUSH BC        ; Save count
        LD   HL,$4000  ; 16384 (First Byte in Display File)
        LD   BC,$1800  ; 6144 (Byte count)
LOOP    LD   A,(HL)    ; Fetch a Byte
        AND  D         ; Mask out the Bits.
        LD   (HL),A    ; Put the Byte back
        INC  HL        ; Move on to the next Byte
        DEC  BC        ; Reduce count
        LD   A,B       ;
        OR   C         ; Is the count 0 yet?
        JR   NZ,LOOP   ; No, then repeat the process
        LD   A,D       ; Yes, then fetch the mask
        RRCA           ; Divide by 2
        LD   D,A       ; Store the new mask
        POP  BC        ; Restore original count
        DJNZ PROG      ; Repeat until the count reaches 0
        RET            ; Return to BASIC
```

Programming: Spectrum 128

Piano

by Stewart Nichols

I expect all owners of the new 128K Spectrum have by now had a go at writing a simple Basic program to convert the keyboard into a piano or organ using a program on the lines

10 Let A$=Inkey$ **20** Play A$ **30** Goto 10

The limitations of this program are obvious in that no sharps or flats can be played, only one note can be sounded at one time (thus ruling out chords) and the keys are not in any particular order.

To rectify all these points I have produced a small Basic music program that is driven by a machine code routine to scan the keyboard, giving a more logical order to the keys, reading up to three key presses at one time (though some combinations of keys will not give the expected results due to the method of interconnections used by Sinclair) and displaying on the screen the key presses in the form of a piano keyboard with two octaves of sound including all sharps (and flats).

The machine code actually modifies the *Play* command in Line 95 so that as long as the two '#' are included at the end of each string to accept the notes, the play command can be modified to produce any sound effect you like.

One note of warning: Lines 95 and 100 must remain the last two lines of the program, so any changes must be made before these lines.

```
2 DATA 33,96,89,14,2,6,32,203,190,35,16,251,13,33,192,89,32,243,33,185,117,6,6,54,33,35
4 DATA 16,251,54,0,17,185,117,1,204,254,35,237,120,197,6,5,31,56,37,245,126,167,40,31
6 DATA 50,191,117,60,50,191,117,237,160,237,160,229,213,94,35,86,235,203,254,35,203,254
8 DATA 209,225,204,3,40,17,241,24,3,241,35,38,35,35,16,218,193,203,0,56,200,24,2,241,193
10 DATA 42,75,92,17,16,0,167,237,82,235,33,190,117,6,3,26,254,34,192,27,237,160,237,160
12 DATA 5,202,96,110,26,254,34,40,3,27,24,248,27,27,24,231,33,33,33,33,33,33,0,0,0,255
14 DATA 0,99,33,194,89,100,33,196,89,101,33,198,89,102,33,200,89,0,0,255,0,35,99,98,89
16 DATA 35,100,101,89,0,0,255,0,35,102,105,89,0,0,255,0,67,33,208,89,68,33,210,89,69,33
18 DATA 212,89,70,33,214,89,0,0,255,0,0,0,255,0,35,67,113,89,35,68,115,89,0,0,255,0,0,0
20 DATA 255,0,0,0,255,0,35,65,123,89,35,71,121,89,35,70,119,89,0,0,255,0,0,0,255,0,64,33
22 DATA 220,89,65,33,218,89,71,33,216,89,0,0,255,0,0,0,255,0,0,0,255,0,35,97,109,89,35
24 DATA 103,107,89,0,0,255,0,0,0,255,0,98,33,206,89,97,33,204,89,103,33,202,89,62,22,215
26 DATA 62,6,215,62,13,215,17,185,117,1,6,0,195,68,32
28 CLEAR 29999
30 PAPER 4: INK 0: FLASH 0: BRIGHT 0: BORDER 5: CLS
32 PRINT AT 11,2;"Please wait.....": RESTORE 2: FOR a=300
```

```
   00 TO 30321: READ b: POKE a
   ,b: NEXT a: CLS
34 FOR a=10 TO 15: PRINT  PAPE
   R 7;AT a,2;"
                  ": NEXT a
36 PLOT 0,175: DRAW 255,0: DRA
   W 0,-175: DRAW -255,0: DRAW
    0,175
38 DATA 32,48,80,96,112,144,16
   0,192,208,224
40 PLOT 15,96: DRAW 225,0: DRA
   W 0,-49: DRAW -225,0: DRAW
   0,49
42 PRINT  PAPER 3; INK 0;AT 2,
   2;" THE SPECTRUM 128K - MUS
   IC "; PAPER 3; INK 7;AT 3,2
   ;"written by: Stuart Nichol
   ls"
44 PLOT 64,47: DRAW 0,49: PLOT
    128,47: DRAW 0,49: PLOT 17
   6,47: DRAW 0,49
46 RESTORE 38: FOR a=1 TO 10:
   READ x: GO SUB 70: NEXT a
48 FOR a=10 TO 12: PRINT  INK
   7; PAPER 0; OVER 1;AT a,3;"
      ";AT a,9;"      ";AT a,
   17;"    ";AT a,23;"      ":
    NEXT a
50 PRINT  PAPER 2; INK 7;AT 5,
   10;" N O T E S' ": GO TO 75

70 PLOT x,47: DRAW 0,25: DRAW
    INK 9;-8,0: DRAW  INK 9;0,
   23: DRAW  INK 9;15,0: DRAW
    INK 9;0,-23: DRAW  INK 9;-
   7,0: RETURN
75 PRINT AT 11,3; PAPER 9; INK
    9; OVER 1;"#b#b  #b#b#b  #
   b#b  #b#b#b"
80 PRINT AT 14,2; PAPER 9; OVE
   R 1;"c d e f g a b C D E F
   G A B"
82 PRINT  PAPER 1; INK 5;AT 19
   ,3;"S D"; PAPER 4;"   "; PA
   PER 1;"G H J"; PAPER 4;"
   "; PAPER 1;"3 4"; PAPER 4;"
     "; PAPER 1;"6 7 8"
84 PRINT  PAPER 1; INK 5;AT 20
   ,2;"Z X C V B N M W E R T Y
    U I"
90 RANDOMIZE USR 30000
95 PLAY "UX1000W3''","UX1000W3
   ''","UX1000W3''"
88 GO TO 90
```



Jobs Table

by Jon Prestidge

Assuming that at least some of us still know and love the QL, here's a utility to list out the QDOS job table.

The QDOS job table is a list of long words which contains the address of each job. The address of the job table can be found by *Peek_L(163944)* and the address of its last possible entry by *Peek_L(163948)*. When you've found that (Lines 31060 and 31070 in the program) you can then read each entry in the job table, finding the address of each job (Line 31330).

At this address will be the job header which contains information like the job owner and most important from a humans point of view, what the job is called (see Lines 31360 to 31420). Unfortunately though, not all programmers include names in the job header, so you have to check for the number 19195 to see if there's a job name (Line 31520). In actual fact, there's usually only one job without a name and that's SuperBasic, but since SuperBasic is always job number zero, the program can fill in the name. For any other job without a job name then "none" will be displayed in the job name column.

To execute the job table display type *Show_Jobs 10*. The table will appear in the top right of your screen (if you have a TV then you'll have to alter the window position on Line 31110 so that it will all fit on the screen). The number ten in the show jobs command specifies the channel number of the display window — this can be any free channel. The table will display five jobs at once. If by any chance you should have any more than five jobs on the go then it will display a section at a time.

```
31000 REMark ==============================================
31010 REMark Show jobs program
31020 REMark J.E.Prestidge
31030 DEFine PROCedure Show_Jobs( c, qual$ )
31040   LET high_job_num = PEEK_W( 163938 )
31050   LET next_job_num = PEEK_L( 163940 )
31060   LET job_table_st = PEEK_L( 163944 )
31070   LET job_table_en = PEEK_L( 163948 )
31080   LET job_tag      = PEEK_W( 163936 )
31090   IF c = 0 THEN PRINT #0, "Error can't do that on consol channel." : RETurn
31100   OPEN #c, scr_
31110   WINDOW #c, 305,82,208,0
31120   BORDER #c, 1, 7 : PAPER #c, 2: CLS #c
31130   INK #c, 0 : PAPER #c, 4
31140   PRINT #c, FILL$( " ", 50 )
31150   AT #c, 0,0 : PRINT #c, "QDOS Job Table for QL version " & VER$ & ". Highest Job " & high_job_num
31160   INK #c, 7 : PAPER #c, 2
31170   LET Y = 3 : REMark line of text
31180   LET job_num = 0
31190   PRINT #c, "Job Header Prog   Length Job    Pr"
31200   PRINT #c, "Num Add    Add    of Job Own Pr ic Stat I.D."
31210   LINE #c, 0, 89 TO 303, 89
31220   LINE #c, 0, 63 TO 303, 63
31230   LINE #c, 20, 0 TO 20, 89
31240   LINE #c, 59, 0 TO 59, 89
31250   LINE #c, 98, 0 TO 98, 89
31260   LINE #c, 137, 0 TO 137, 89
31270   LINE #c, 160, 0 TO 160, 89
31280   LINE #c, 177, 0 TO 177, 89
31290   LINE #c, 193, 0 TO 193, 89
31300   LINE #c, 221, 0 TO 221, 89
31310   LET jobs_on_screen = 0
31320   REMark ==== Loop through job table ====
31330   FOR a = job_table_st TO job_table_en - 4 STEP 4
31340     LET job_header_st = PEEK_L( a )
31350     IF job_header_st < 0 THEN GO TO 31840
31360     LET job_id       = job_header_st + 110
31370     LET job_st       = PEEK_L( job_header_st + 4 )
31380     LET job_len      = PEEK_L( job_header_st )
31390     LET job_owner    = PEEK_L( job_header_st + 8 )
31400     LET job_pri      = PEEK( job_header_st + 18 )
31410     LET job_pri_inc  = PEEK( job_header_st + 19 )
31420     LET job_stat     = PEEK_W( job_header_st + 20 )
31430     AT #c, Y, 0 : PRINT #c, job_num
31440     AT #c, Y, 4 : PRINT #c, job_header_st
31450     AT #c, Y, 11 : PRINT #c, job_st
31460     AT #c, Y, 18 : PRINT #c, job_len
31470     AT #c, Y, 25 : PRINT #c, job_owner
31480     AT #c, Y, 29 : PRINT #c, job_pri
31490     AT #c, Y, 32 : PRINT #c, job_pri_inc
31500     AT #c, Y, 35 : PRINT #c, job_stat
31510     AT #c, Y, 40 :
31520     IF PEEK_W( job_id ) = 19195 THEN
```



```
31530      FOR b = job_id + 4 TO job_id + 3 + PEEK_W( job_id + 2 )
31540        IF b - job_id - 4 > 9 THEN AT #c, Y, 49 : GO TO 31570
31550        PRINT #c, CHR$( PEEK( b ) );
31560      NEXT b
31570      PRINT #c, ""
31580    ELSE
31590      IF job_num > 0 THEN PRINT #c, "none"
31600      IF job_num = 0 THEN PRINT #c, "Superbasic"
31610    END IF
31620    LET Y = Y + 1
31630    LET jobs_on_screen = jobs_on_screen + 1
31640    IF LEN( INKEY$ ) THEN GO TO 31640
31650    IF jobs_on_screen = 5 THEN
31660      AT #c, 1, 40 : INK #c, 0 : PRINT #c, "M,R or E ?" : INK #c, 7
31670      LET I$ = INKEY$
31680      IF LEN( I$ ) THEN BEEP 100,10000
31690      IF I$ = "m" OR I$ = "M" THEN GO TO 31730
31700      IF I$ = "r" OR I$ = "R" THEN GO TO 31040 : REMark restart
31710      IF I$ = "e" OR I$ = "E" THEN RETurn
31720      GO TO 31670
31730      LET jobs_on_screen = 0
31740      FOR d = 3 TO 7
31750        AT #c, d,  0 : PRINT #c, "   "
31760        AT #c, d,  4 : PRINT #c, "      " : AT #c, d, 11 : PRINT #c, "
31770        AT #c, d, 18 : PRINT #c, "      " : AT #c, d, 25 : PRINT #c, "   "
31780        AT #c, d, 29 : PRINT #c, "  "   : AT #c, d, 32 : PRINT #c, "  "
31790        AT #c, d, 35 : PRINT #c, "   "  : AT #c, d, 40 : PRINT #c, "
31800      NEXT d
31810      LET Y = 3
31820      AT #c, 1, 40 : PRINT #c, "
31830    END IF
31840    LET job_num = job_num + 1
31850  NEXT a
31860  CLOSE #c
31870 END DEFine Show_Jobs
```




Lift

by Andrew Brewster

Not for the faint hearted this game as you play the role of a lift attendant at an office block in the unfortunate position of being at work during a fire

As the filing clerks rush for the lift on all seven floors of the building, you must attempt to manoeuvre the car to save as many as you can The problem is filing clerks being what they are if the lift isn t there – they ll take a nose dive down the shaft Can you avert disaster?

Full instructions and *Rem* statements are included in the listing – but note that this will work on a C16 only

```
10 REM *** LIFT ATTENDANT ***
20 REM *** MOVE CHARSET ***
30 COLOR 1,2 COLOR 0,1
31 VOL7
40 PRINT "[ctrl codes]     PRESS [RVS]RETURN[OFF] THREE TIMES[OFF]"
60 DO
65 FOR U=1 TO50 NEXT
70 DO LOOP UNTIL PEEK(198)=1 I=I+1
71 SOUND 1,100,5
80 DO LOOP UNTIL PEEK (198)<>1
90 CHAR,15,8,STR$(I) FOR D=1 TO 10 NEXT
```

Programming: Commodore 16

```
[illegible]
130 PRINT "[illegible] [illegible] [illegible]"
135 PRINT "[illegible]" PRINT "[illegible]"
140 MONITOR
145 REM *** DEFINE CHARS ***
150 POKE 55,252 POKE 56,47
160 POKE 65298,192 POKE 65299,(PEEK(65299)AND3)OR48
170 Y=14412 Y=Y-30A0
180 FOR I=12 TO Y+55 READ A POKE I,A NEXT
200 DIM Y(30)
210 SCNCLR
220 COLOR 0,14,5
230 P=20 H=0 D=0 SC=0 LC=0 ML=0
240 M$="[illegible]"
250 CHAR 7,13 "DO YOU WANT INSTRUCTIONS"
260 CHAR 17,14 "(Y/N)"
270 GETKEY A$ IF A$="" THEN 270
280 IF A$<>"Y" THEN 270 ELSE GOSUB 1150
300 SCNCLR
310 CHAR 7,12 "SKILL LEVEL (1-9)"
320 CHAR 7,15 "1=IMPOSSIBLE"
330 CHAR 7,16 "9=EASY"
340 GETKEY A$ IF ASC(A$)<49 OR ASC(A$)>57 THEN 340
350 LV=VAL(A$)
360 PRINT "[illegible]"
370 SCNCLR
375 REM *** SET UP SCREEN ***
380 FOR A=5 TO 24 STEP 3
390 CHAR 3,A "[illegible]"
400 FOR A=4 TO 24 CHAR 2,A "[illegible]" NEXT
410 CHAR 3,24 "[illegible]"
420 REM *** PLOT PEOPLE ***
430 FOR Y=5 TO 24 STEP 3 CHAR 3,Y "[illegible]"
440 Y(Y)=[illegible] NEXT
450 CHAR 12,1 "[illegible] IN LIFT [illegible]"
460 CHAR 5,3 "[illegible] SAVED [illegible]"
470 CHAR 22,2 "[illegible] LOST [illegible]"
480 H=23 CHAR 3,H "[illegible]"
490 FOR C=4 TO 22 [illegible] NEXT
500 REM *** MAIN PROGRAM LOOP ***
510 REM *** KEY CONTROL ***
520 REM *** RANDOM MOVEMENT ***
530 GET A$ Z=INSTR(M$,A$) ON Z GOSUB 800,750
540 [illegible]
550 IF X(Y)=[illegible] THEN GOSUB 630
560 ON [illegible] GOSUB 620,630,640,650,660,670
570 CHAR [illegible]
580 [illegible]
590 [illegible] CHAR [illegible]
600 [illegible]
610 [illegible]
620 Y=8 RETURN
630 Y=11 RETURN
640 Y=14 RETURN
650 Y=17 RETURN
660 Y=20 RETURN
670 Y=23 RETURN
680 REM *** FALLING ROUTINE ***
690 IF [illegible] THEN 630
700 FOR F=Y TO 23 CHAR [illegible]
710 SOUND [illegible]
720 CHAR [illegible] NEXT [illegible]
730 IF [illegible] THEN 1000
740 [illegible] CHAR [illegible] RETURN
750 REM *** LIFT DOWN ***
760 IF H=23 THEN RETURN ELSE CHAR 3,H "[illegible]"
770 H=H+1 CHAR 3,H "[illegible]"
780 RETURN
790 REM *** LIFT UP ***
800 IF H=5 THEN [illegible] CHAR 3,H "[illegible]"
810 H=H-1 CHAR 3,H "[illegible]"
820 RETURN
830 REM *** MAN IN LIFT ***
840 SOUND 1,1000,4
850 [illegible] IF [illegible] THEN 880
860 CHAR 22,1 "[illegible]"
870 CHAR [illegible] 530
880 REM *** LIFT CRASH ***
885 CHAR [illegible]
890 FOR [illegible]
900 CHAR [illegible]
910 SOUND [illegible] FOR J=1 TO 100 NEXT
920 CHAR [illegible] NEXT
930 CHAR [illegible]
940 SOUND 3,700,25
950 M$="YOU CARRIED TOO MANY"
960 CHAR [illegible] GOTO 1110
970 REM *** ESCAPING MEN ***
980 IF [illegible] THEN GOTO 600
990 FOR [illegible]
995 FOR [illegible] CHAR [illegible]
998 FOR J=1 TO 50 NEXT
1000 SOUND [illegible] CHAR [illegible]
1001 FOR [illegible] NEXT
1010 CHAR [illegible]
1011 CHAR [illegible]
1020 NEXT SOUND 1,1000,5
1030 CHAR [illegible] IF [illegible] THEN 1050 ELSE NEXT
1040 LC=LC+[illegible] GOTO [illegible]
1050 REM *** END OF GAME ***
1060 FOR [illegible] STEP 10
1070 SOUND [illegible] NEXT
1080 M$="[illegible] YOU ARE FIRED" GOTO 1100
1090 M$="WELL DONE YOU DESERVE A MEDAL"
1100 SOUND [illegible]
1110 CHAR [illegible] "ANOTHER GO(Y/N)"
1120 GETKEY A$ IF A$="Y" THEN 210
1130 IF A$<>"N" THEN 1120 ELSE END
1140 CHAR [illegible] RETURN
1150 PRINT "[illegible] LIFT ATTENDANT"
1160 PRINT "[illegible]"
1170 PRINT "[illegible] BY [illegible]"
1180 PRINT PRINT "[illegible] FOR THE C16"
1190 PRINT PRINT "[illegible] IS ABLAZE [illegible] YOUR JOB"
1200 PRINT "[illegible] LIFT ATTENDANT IS [illegible] TO SAFETY AT THE TOP"
1210 PRINT "OF THE BUILDING"
1220 PRINT "THE LIFT CAN ONLY CARRY A FEW PEOPLE (ACCORDING TO SKILL LEVEL) SO"
1230 PRINT "[illegible] TRIPS TO THE TOP ARE NECESSARY"
1240 PRINT
1250 PRINT "IF YOU CARRY TOO MANY PASSENGERS (ACCORDING TO SKILL LEVEL) THEN YOU"
1260 PRINT "LOSE YOUR JOB AS THE ATTENDANT" PRINT PRINT
1270 PRINT "[illegible] PRESS ANY KEY TO CONTINUE"
1280 GETKEY A$ SCNCLR
1290 CHAR 10,5 "THE CONTROLS ARE -"
1291 CHAR 10,[illegible] "[illegible]"
1292 CHAR 10,[illegible] "[illegible]"
1293 CHAR 10,[illegible] "[illegible]"
1300 CHAR [illegible] "DO YOU WISH TO RE-DEFINE THE CONTROLS"
1301 CHAR [illegible] "(Y/N)"
1310 GETKEY A$ IF A$="Y" THEN 1330
1320 IF A$<>"N" THEN 1310 ELSE 1300
1330 REM *** DEFINE KEYS ***
1331 M$=""
1332 CHAR [illegible] "PRESS -"
1333 CHAR [illegible] "UP [illegible] DOWN"
1334 FOR A=0 TO 1 GETKEY A$(A)
1335 [illegible] M$=M$+A$(A)
1336 NEXT
1337 PRINT PRINT PRINT "[illegible] PRESS ANY KEY TO CONTINUE"
1338 GETKEY A$ RETURN
1340 REM *** WALL ***
1350 DATA 255,[illegible]
1360 REM *** [illegible] ***
1370 DATA 112,[illegible],112,0,0,0,0,0
1380 REM *** MAN ***
1390 DATA 24,[illegible],24,36,194
1400 REM *** LIFT ***
1410 DATA [illegible],165,255,165,255,165,[illegible]
1420 REM *** CRASH ***
1430 DATA 40,16,40,16,40,16,40,16
1440 REM *** [illegible] ***
1450 DATA 0,0,0,36,24,36,42,[illegible]
1460 REM *** [illegible] ***
1470 DATA 24,24,[illegible],16,40,36,54
```

Programming: Amstrad

Double-Sized Letters

or 4 Times

or 8!

Write sideways

Fancy Letters

by John Durst

Any program whether written for business or pleasure is the better for good presentation and there are often times when it would be useful to be able to vary the size of the lettering on the computer screen, to make bold headlines etc

Here are three short programs which will enable you to print messages on the screen in letters two four or eight times the normal size Another one makes the letters appear on their sides so that you can print a message reading from top to bottom (or from bottom to top)

The routines inevitably are written in machine code but I have incorporated each one in a Basic program which will place it in the computer s RAM at any address you choose Once entered, you can save the machine code by itself using *Save name B,<start address> <code length>* for use in your own programs

Type in the program listings and run them If you have made a mistake in the code the computer should spot this and allow you to correct it Each program gives particulars of *Call* addresses, number of bytes involved etc

The routines are a little longer that they might be, as I have made them not only print the characters on the screen, but also set the correct print position for the next character However, the extra finger jabs are worth it for the ease of operation they give! I have suggested addresses for the code if you use them each routine will follow directly after the previous one so that you can save the whole lot in one block of 310 bytes for later use Remem-



FIST II
the legend continues

ber to do *Memory 36863* (one less than the point at which you want the first block to start) before running the first program, so as to make a safe area to store the code.

To use one of the routines, you must do a *Call* from Basic which includes the number of the character you want printed in the form *Call <routine address> <character>* This will pass the character to the program for printing (known as passing parameters, in the trade) The example shows how you can deal with a message within a string, in a Basic program

Program Notes

Double-Sized letters

This routine uses the first four User-Graphic characters as locations to hold the big character, so if you have your own User-Graphics, you'll have to make four more spaces by doing, *Symbol After <existing number>-4* before you start – or else you will lose your characters

4 × Letters & 8 × Letters

Neither of these uses any special workspace so the User Graphics are unaffected

Sideways Letters

This routine uses the first two graphic positions to deal with the new letters So if you haven't already provided extra space, for Program 1 you will have to do, *Symbol After <existing number>-2* to provide the workspace

By altering just two Bytes in the machine code, you can make the letters face in different directions so that a message will read from top to bottom or from bottom to top The two Bytes are circled in the printed program here is what they do

Bytes 1E 17 = Reads bottom to top

Bytes 16 1F = Reads top to bottom

Finally, you will see that in each of the programs three Bytes are underlined If you change these to make them *CD 18 BB* the program will print to screen any character you enter from the keyboard In effect, you get a kind of Jumbo typewriter for each letter you have to do a separate CALL since the parameters are going to be passed from the keyboard

You just enter *Call <address>* by itself without any additional number

If anybody who is interested in copies of the assembler listings I'd be glad to let them have them They should send an SAE to J Durst Coltscombe Barn Swerford

4×

```
10 REM *** Check code data ***
20 DIM chk(4)
30 RESTORE 1000:FOR j=0 TO 2
40 FOR i=1 TO 20:READ n$:chk(j)=chk(j)+VAL("&"+n$):NEXT
50 NEXT
60 FOR i=1 TO 13:READ n$:chk(3)=chk(3)+VAL("&"+n$):NEXT
70 FOR j=0 TO 3:READ n:IF n<>chk(j) THEN 90
80 NEXT:PRINT"CODING CHECKS OK":GOTO 100
90 PRINT"ERROR IN LINE";1000+j:STOP
100 REM *** Place code in memory ***
110 PRINT"Space for 73 Bytes needed: Have you set HIMEM?":PRINT"Suggested start address. 36773 (=&8FA5)":INPUT"Start address",add
120 REM *** Enter main code ***
130 RESTORE:FOR j=0 TO 72:READ n$:POKE add+j,VAL("&"+n$):NEXT
140 PRINT"ROUTINE LOADED":PRINT"CALL";add;"TO USE."
150 END
999 REM *** Routine data ***
1000 DATA DD,7E,00,CD,A5,BB,CD,06,B9,F5,0E,08,06,04,5E,23,56,23,AF,CB
1001 DATA 13,1F,CB,13,1F,CB,12,1F,CB,12,1F,1F,1F,1F,37,1F,C2,5A,BB,10
1002 DATA E9,0D,20,0F,E5,CD,78,BB,2C,25,25,25,25,CD,75,BB,E1,18,D3,C3
1003 DATA 78,BB,2D,2D,2D,CD,75,BB,F1,CD,0C,B9,C9
1100 REM *** Checksum data ***
1110 DATA 2201,1404,2006,1795
```

8×

```
10 REM *** Check code data ***
20 DIM chk(4)
30 RESTORE 1000:FOR j=0 TO 2
40 FOR i=1 TO 20:READ n$:chk(j)=chk(j)+VAL("&"+n$):NEXT
50 NEXT
60 FOR i=1 TO 3:READ n$:chk(3)=chk(3)+VAL("&"+n$):NEXT
70 FOR j=0 TO 3:READ n:IF n<>chk(j) THEN 90
80 NEXT:PRINT"CODING CHECKS OK":GOTO 100
90 PRINT"ERROR IN LINE";1000+j:STOP
100 REM *** Place code in memory ***
110 PRINT"Space for 63 Bytes needed. Have you set HIMEM?":PRINT"Suggested start address 37046 (=&90B6)":INPUT"Start address",add
120 REM *** Enter main code ***
130 RESTORE:FOR j=0 TO 62:READ n$:POKE add+j,VAL("&"+n$):NEXT
140 PRINT"ROUTINE LOADED":PRINT"CALL";add;"TO USE"
150 END
999 REM *** Routine data ***
1000 DATA DD,7E,00,CD,A5,BB,CD,06,B9,F5,0E,08,06,08,7E,23,17,F5,3E,80
1001 DATA 30,02,C6,0F,CD,5A,BB,F1,10,F2,E5,2B,0F,E5,CD,78,BB,2C,7C,D6
1002 DATA 08,67,CD,75,BB,E1,18,DC,CD,78,BB,7D,D6,07,6F,CD,75,BB,F1,CD
1003 DATA 0C,B9,C9
1100 REM *** Checksum data ***
1110 DATA 2260,2435,3013,398
```

Sideways

```
10 REM *** Check code data ***
20 DIM chk(4)
30 RESTORE 1000:FOR j=0 TO 2
40 FOR i=1 TO 20:READ n$:chk(j)=chk(j)+VAL("&"+n$):NEXT
50 NEXT
60 FOR i=1 TO 5:READ n$:chk(3)=chk(3)+VAL("&"+n$):NEXT
70 FOR j=0 TO 3:READ n:IF n<>chk(j) THEN 90
80 NEXT:PRINT"CODING CHECKS OK":GOTO 100
90 PRINT"ERROR IN LINE";1000+j:STOP
100 REM *** Place code in memory ***
110 PRINT"Space for 65 Bytes needed. Have you set HIMEM?":PRINT"Suggested start address 37169 (=&9131)":INPUT"Start address",add
120 REM *** Enter main code ***
130 RESTORE:FOR j=0 TO 64:READ n$:POKE add+j,VAL("&"+n$):NEXT
140 PRINT"ROUTINE LOADED":PRINT"CALL";add;"TO USE."
150 END
999 REM *** Routine data ***
1000 DATA CD,AE,B8,80,01,08,00,09,E5,DD,7E,00,CD,A5,BB,CD,06,B9,D1,F5
1001 DATA 01,08,00,ED,B0,F1,CD,0C,B9,ED,A7,01,08,00,ED,42,E5,D1,ED,42
1002 DATA EB,0E,08,06,08,E5,CB,16,23,1F,10,FA,12,13,E1,0D,20,F1,CD,AE
1003 DATA B8,CD,5A,BB,C9
1100 REM *** Checksum data ***
1110 DATA 2775,2520,1984,890
```

Example

```
10 CLS
20 n$="Popular Computing"
30 LOCATE 3,2
40 FOR j=1 TO LEN(n$)
50 n=ASC(MID$(n$,j,1))
60 CALL 32768,n:REM code at &8000
70 NEXT
80 LOCATE 1,8
90 LIST
```

2×

```
10 REM *** Check code data ***
20 DIM chk(6)
30 RESTORE 1000:FOR j=0 TO 4
40 FOR i=1 TO 20:READ n$:chk(j)=chk(j)+VAL("&"+n$):NEXT
50 NEXT
60 FOR i=1 TO 9:READ n$:chk(5)=chk(5)+VAL("&"+n$):NEXT
70 FOR j=0 TO 5:READ n:IF n<>chk(j) THEN 95
80 NEXT:PRINT"CODING CHECKS OK":GOTO 100
90 PRINT"ERROR IN LINE";1000+j
100 REM *** Place code in memory ***
110 PRINT"Space for 109 Bytes needed: Have you set HIMEM?":PRINT"Suggested start address 36864 (=&9000)":INPUT"Start address",ade
120 REM *** Enter main code ***
130 RESTORE:FOR j=0 TO 108:READ n$:POKE ade+j,VAL("&"+n$):NEXT
140 PRINT"ROUTINE LOADED":PRINT"CALL";ade;"TO USE"
150 END
999 REM *** Routine data ***
1000 DATA CD,AE,B8,D5,E5,FD,E1,DD,7E,00,CD,A5,BB,CD,06,B9,F5,0E,08,06
1001 DATA 04,C5,7E,06,08,1F,CB,1A,CB,1B,CB,2A,CB,1B,10,F5,C1,FD,72,00
1002 DATA FD,72,01,FD,73,08,FD,73,09,23,FD,23,FD,23,10,08,11,08,04,FD
1003 DATA 19,0D,20,D3,F1,CD,0C,B9,CD,AE,B8,F5,CD,5A,06,F1,3D,F5,CD,5A
1004 DATA BB,CD,78,BB,F1,E5,F5,2C,25,25,CD,75,BB,F1,3C,F5,CD,5A,BB,F1
1005 DATA 3C,CD,5A,BB,E1,CD,75,BB,C9
1100 REM *** Checksum data ***
1110 DATA 3048,2127,2247,3038,3310,1477
```

Microdrive utility on QL
by Martyn Winters

Producing a microdrive directory list can be a messy and confusing business, if you have a great number of small files on one cartridge

The following utility makes it quite simple, it a purpose being to establish clearly on the screen all of the items in a microdrive directory list and to make program selection less of a problem

If used as a boot program you ll find that life becomes a lot easier if you are a QL owner with more than 23 files on one drive

```
1 PAPER #0,0
2 WINDOW #0,512,255,0,0:CLS#0:a=1
3 CSIZE 0,0
4 DELETE MDV1_DIR
5 OPEN_NEW #3,MDV1_DIR
6 DIR#3,MDV1_
7 OPEN_IN#3 MDV1_DIR
8 INPUT #3,A$!A$
9 PRINT #0,A$
10 REPeat COP
11 IF EOF (#3):EXIT COP
12 INPUT #3,A$
13 PRINT#0,!a!A$,
14 a=a+1
15 END REPeat COP
16 CLOSE #3
17 DELETE MDV1_DIR
18 INPUT #0,\"INPUT FILE NAME,
USING CORRECT QDOS SYNTAX ";FILE$
19 LRUN 'MDV1_'&FILE$
```

Compatibility on Spectrum
by Stephen Fryer

This is the routine for working out the compatibility of any two people yourself and a pop star for example After the user has typed in their name then they must type in the name of the person they wish to be compared with

The routine works by removing certain letters from both names In this case L O V E and S then forming a number from the amount of each letter in both names The computer then divides this by two unless it is less than 100 The result is printed as the compatibility rating between the chosen couple out of 100

Obviously this is not the most serious of programs but was extremely popular among the members of my local computer club Dull parties and the like can certainly be livened up on running the routine and it has produced some uncannily accurate results!

```
   5 POKE 23658,10  POKE 23658,8
  10 DIM q(5)
  20 CLS   INPUT "Your name: , L
INE n$
  30 CLS   INPUT 'His/her name '
, LINE h$
  35 LET x$=''
  40 LET z$=n$+h$
  45 FOR x=1 TO 5  LET q(X)=0: N
EXT x
  50 FOR x=1 TO 5
  60 IF x=1 THEN LET l$='L'
  65 IF x=2 THEN LET l$='O'
  70 IF x=3 THEN LET l$='V'
  75 IF x=4 THEN LET l$='E'
  80 IF x=5 THEN LET l$='S'
  90 FOR y=1 TO LEN z$
 100 IF z$(y)=l$ THEN LET q(x)=q
(x)+1
 110 NEXT y
 120 NEXT x
 130 FOR x=1 TO 5  LET x$=x$+STR
$ q(x)  NEXT x
 140 LET c=VAL x$
 150 LET c=c/2
 160 IF c)100 THEN GO TO 150
 170 LET c=INT c
 180 CLS   PRINT 'COMPATIBILITY
RATING BETWEEN "
 185 PRINT
 190 PRINT n$, ' &   PRINT
 195 PRINT h$  PRINT
 200 PRINT  is  ,c,'%'
 210 PRINT   INPUT  DOES THE SAM
E PERSON WISH TO RUNTHE PROGRAM
AGAIN ?', LINE f$  IF f$='n' OR
f$= N' THEN RUN
 220 GO TO 30
```

Key decoder on Amstrad
by A M Scott

The problem with trying to find out what any particular function key does is that pressing the said key invariably causes it s function to become operative quickly concealing the statements that the aforementioned key contained This program will display the contents of the Amstrad function keys without activating them

Type in an run the listing ensuring that all the data has been correctly entered Now, typing *|Klist,0* as a command will result in keys 128 to 140 being revealed Similarly *|Klist 1* will expose keys 141 to 160

Typing in any other parameters (or none at all) will result in nothing happening

Note that all characters are shown Chr$(13) or Return being displayed as a down arrow

```
10   Function Key
 Lister
20   by Alastair Scott
30 MODE 2:MEMORY &A3FF:cs=0
40 FOR addr=&A400 TO &A4BF
50 READ byte$:POKE addr,VAL("&"+byte$):cs=cs+PEEK(addr)
60 NEXT
70 IF cs<>14684 THEN PRINT CHR$(7)"DATA ERROR":END
80 CALL &A400:PRINT"!KLIST,(range) command installed.":END
90 DATA 01,09,A4,21,14,A4,C3,D1,BC,0E,A4,C3,18,A4,4B,4C
100 DATA 49,53,D4,00,00,00,00,00,FE,01,C0,DD,7E,00,FE,00
110 DATA 20,09,3E,8D,32,5F,A4,3E,80,18,0A,FE,01,C0,3E,A0
120 DATA 32,5F,A4,3E,9D,4F,CD,7F,A4,4B,45,59,20,00,CD,A4
130 DATA A4,3E,20,CD,5A,B8,06,FF,04,79,A8,CD,12,BB,30,07
140 DATA C5,CD,5D,B8,C1,18,F1,CD,7F,A4,0D,0A,00,0C,3E,00
150 DATA B9,20,D3,C9,41,1E,64,CD,71,A4,1E,0A,CD,71,A4,1E
160 DATA 01,78,16,2F,A7,14,93,30,FC,83,47,7A,C3,5A,B8,E1
170 DATA 7E,CD,5A,B8,23,B7,20,F8,E9,00,00,00,00,00,00,00
```



3D visions

A Halliwell Holywell Clwyd North Wales, writes

Q Having become bored with playing Elite on my BBC, I have decided to try my hand at programming. I realise that it will take me a few years to become proficient enough to produce a game like Elite but I would like to know how the programmers deal with three dimensional graphics.

A Moving points and lines around in three dimensions is not really very hard; getting them to move at high speed is what takes the skill. Basically, starting with two dimensions it is possible to draw a circle with the following routine

```
10 FOR T - 0 to 2*PI STEP 0 1
20 X = SIN(T)*200 + 512
30 Y + COS(T)*200 + 640
40 PLOT 69 X,Y
50 NEXT
```

What this does is move the X Y coordinates of a point around a circle plotting each one as it is evaluated. In three dimensions each point has three coordinates, X,Y, and Z. I'll take the X axis to be horizontal, the Y axis to be vertical, and the Z axis to be out of the page (screen).

To rotate a point first the axis of rotation must be selected i.e. around the X (pitch), Y (yaw) or Z (roll). When manipulating a shape it is taken as a series of lines connecting a number of points – the points are what we manipulate so a cube will have eight points and the shape is produced by drawing a line from one point to another and at this stage the order in which the lines are drawn doesn't really matter. Unlike the two dimensional version there are two equations for each coordinate (there are actually three but one always comes to nothing)

Z Rotation:
X = X*COS(A) + Y*SIN(A)
Y = Y*COS(A) – Y*SIN(A)
X Rotation:
Y = Y*COS(A) + Z*SIN(A)
Z = Z*COS(A) – Z*SIN(A)
Y Rotation:
X = X*COS(A) – Z*SIN(A)
Z = Z*COS(A) + X*SIN(A)

Where X,Y and Z are coordinates and A is the angle.

Normally these are represented by a matrix but you don't need to know a great deal about this to make the points move – it just makes things easier to explain and a knowledge of matrix operations can be used to increase speed.

To draw the lines on to the screen you need to take a point of view. This is normally looking straight into the screen so the routine that draws the lines is

DRAW X/(Z*1000) + 512,Y/(Z*1000) + 640

The value of Z is reduced 1000 times to make sure that the effect of depth is not too exaggerated so the further away the point (increasingly positive Z) the closer X and Y are to the centre of the screen ie the object is given perspective.

To move the object around, simply add a value to the direction you wish to move, ie, to move into the screen add to all the Z coordinates. To change the size of an object multiply each of the coordinates (X Y, and Z) by the size factor for all of the points (times X, Y and Z by 2 to double the size).

Once you have operated on all of the points simply use the drawing rules to connect the points together. A little experimentation should allow you to figure out what is going on, and how to use the equations; for more information try Applied Concepts in microcomputer Graphics by Bruce A Artwick (author of the PC flight simulator).

Disc demons

B H Standing, Port Talbot West Glamorgan writes

Q A few weeks ago, I purchased a cheap Atari + 1050 disc drive that was on offer in one of the local shops. Up until then, I had only used micros with a cassette player to load programs. I am not happy with this disc drive since it makes a loud gruh, gruh, gruh, as it accesses the disc (that's the only way I can think of to describe this disturbing noise).

I also have a couple of discs where the instructions state: First turn on the computer and disc drive then insert the disc and type LOAD"*",8,1. When I do this, all I get is an error message. To load the programs I have to insert the disc in the drive before turning on the computer and the programs will then load automatically. Am I going wrong somewhere here? The manual is not a great deal of help.

A My first thought when originally hearing an Atari disc drive was that it was sewing the disc into something that could be used for a Christmas decoration. You are quite right in saying that it makes a rather disturbing noise but don't worry it does no harm; you just have to put up with it. You can also take comfort from the fact that the old Apple disc drives make a similar (but not quite as loud) sound and Commodore 64 users have perhaps the most disgusting sounding drive in the universe.

Your second problem is possibly a confusion between the loading instructions of the Atari and the C64. Loading discs from the latter usually involves typing LOAD"*",8,1. The Atari is actually more civilised since it lets you auto boot the program ie put the disc in and switch the computer on.

ST statistics

H Lewis of Newlands Hull North Humberside writes

Q I have been thinking of buying an Atari ST for a while now but there are a few details that need clarifying. I have programmed in machine code on the BBC and Spectrum and would like to know how much more difficult 68000 code would be. Also, what is the difference between the 520 and 1040 models and is it worth the extra money?

A Since you have used both Z80 and 6502 machine code changing up to 68000 should not trouble you too much. You'll find that there is lots more power available plus a lot more space.

The 68000 has a more complicated architecture with eight 32-bit data registers (similar to BC CD HL on the Z80) and eight 32-bit address registers. Almost all of the operations can be on 8, 16 or 32 bits or even on individual bits. In addition there are built in multiply and divide routines (both signed and unsigned) which although slow are faster than routines written for eight-bit processors.

On the 6502, there are a limited number of addressing modes and on the Z80 even less. On the 68000 however in addition to all the addressing modes you've been used to you can use indirect (the address to be accessed is in the address register), auto increment/decrement (the address register is altered by 1, 2, or 4 after/before it is used), useful for lists, indirect with displacement (a constant is added to the value in the address register before use), indirect with index and displacement (a constant is added to the address register to which in turn is added the contents of another register) and program counter relative (the value of the program counter is used as the address to which is added a displacement), with variations, and limitations on these.

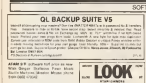
For more information it may be worthwhile obtaining a book on the subject. *68000 Assembly Language Programming* by Gerry Kane, Doug Hawkins & Lance Leventhal is very complete if a little complicated.

While on the subject of books if you do decide on buying an ST, *Atari ST Internals* by Abacus Software is a must if you want to do any programming.

As far as the differences between the 520ST and the 1040ST go the main one is that there is more memory in the 1040 (1M as compared to 512K); the disc drive on the larger machine is also twice the density of the 520s and is built-in.

Is there anything about your computer you don't understand, and which everyone else seems to take for granted? Whatever your problem *Peek* it to Kenn Garroch and every week he will *Poke* back as many answers as he can. The address is *Peek & Poke*, *PCW*, 12-13 Little Newport Street, London WC2R 3LD

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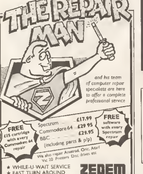
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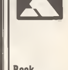
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AMSTRAD Amstrad Landscape Utility Stunning masterpieces from sophisticated machine code routines. S.A.E. for details Brian James 21 Lamond Place Aberdeen AB2 3UT

New Releases

John Cook looks through this week's new arrivals

Amstrad

Program *Money Manager* **Type** Utility **Micro** Amstrad **Price** £29.95 **Supplier** Advance 17 Staple Tye, Harlow Essex CM18 7LX

Program *Microfile/Microword* **Type** Utility **Micro** Amstrad **Price** £49.95 (disc) **Supplier** Amsoft Victoria House PO Box 10 Sunderland, SR1 3AV

Program *Quabbalah* **Type** Arcade **Micro** Amstrad **Price** £9.95 **Supplier** Amsoft Victoria House PO Box 10, Sunderland SR1 3AV

Program *Battlefield Germany* **Type** Strategy **Micro** Amstrad **Price** £8.95 (tape) £13.95 (disc) **Supplier** Cybercome Enterprises, 18 Egdon Drive Merley Wimborne Dorset, BH21 1TY

Program *Soccer 86* **type** Arcade **Micro** Amstrad **Price** £14.99 (disc) £9.99 **Supplier** Activision Activision House 23 Pond St. Hempstead, London NW3 2PN

I love it when they start getting bitchy – don't you? Soccer 86 is billed as a Completely NEW product mentioning no other recently released football games if you know what I mean John. Punchy stuff indeed, but this sort of tactic is a double edged sword (something like playing the offside trap)

That fact is *Soccer 86* may indeed be a completely new product but somehow still manages to look like all the other football games around

What the game has got going for it is the neat way you can distribute power points between the five members of your team before kick off, that is opt for a powerful defence swift attack or whatever It also works as a kind of handicapping system as you can alter the number of points allocated to each team

At £9.99 you could do worse for your money – but there again not significantly so It's still a sad fact that no-one has yet produces a football game with fast arcade action – come on out there! An unfulfilled public awaits!

Program *Image System* **Type** Utility **Micro** Amstrad 464/664 **Price** £15.95 **Supplier** CRL, CRL House, 9 Kings Yard, Carpenters Road London E15 2HD

Program *Room 10* **Type** Arcade **Micro** Amstrad **Price** £7.95 **Supplier** CRL CRL House 9 Kings Yard, Carpenters Road London E15 2HD

Program *Nodes of Yesod* **Type** Arcade **Micro** Amstrad **Price** £9.95 (tape) £14.95 (disc) **Supplier** Odin Computer Graphics Wellington House Upper St Martins Lane, London WC2

Program *Graham Gooch's Test Cricket* **Type** Arcade **Micro** Amstrad **Price** £9.96 (tape) £14.95 (disc) **Supplier** Audiogenic, 12 Chiltern Enterprise Centre, Station Rd Theale Berkshire RG7 4AA

Program *Night Gunner* **Type** Arcade **Micro** Amstrad **Price** £7.95 (tape) £13.95 (disc) **Supplier** Digital Intergration WAtchmoor Trade Centre WAtchmoor Rd, Camberley, Surrey, GU15 3AJ

Atari

Program *Go-Forth* **Type** Utility **Micro** Atari **Price** £24.99 **Supplier** SECS Ltd, 514-516 Alum Rock Road Alum Rock, Birmingham B8 3HX

Pick of the week

Ghost n' Goblins

Program *Ghosts n Goblins* **Type** Arcade **Micro** CBM 64 **Price** £9.95 (tape) £14.95 (disc) **Supplier** Elite Systems Anchor House Anchor Rd, Aldridge Walsall WS9 8PW

Signing up an already successful arcade title and converting it for home micros is quite a good idea if you've got the money

Firstly, you save yourself the trouble of creating a game design and secondly, the thing has already made a name for itself amongst the games playing public

Sadly though this good idea often goes wrong because the conversion job falls down flat – not always because of the programming sometimes just because of hardware limitations It's all a matter of choosing the game for the machine Suffice to say that *Ghosts n Goblins* was made for the 64

Programmed by Japanese Capsule Computers UK (what?) this is an almost perfect copy of the game I spent so many hard earned pennies on Great sound throughout the action bright colourful highly detailed graphics, fast moving responsive utterly addictive Don't worry about the scenario it's purely a vehicle for showing off what the 64 can do when the machine is asked nicely

Program *Font Constructor* **Type** Utility **Micro** Atari **Price** £6.99 **Supplier** SECS Ltd 514-516 Alum Rock Road Alum Rock Birmingham B8 3HX

Atari ST

Program *ASS Habba Pack* **Type** Utility **Micro** Atari ST **Price** £179.80 (£129.95 during July) **Supplier** ASS Ltd 514-516 Alum Rock Road, Alum Rock, Birmingham, B8 3HX.

Commodore 64

Program *Timetrax* **Type** Arcade **Micro** Commodore 64 **Price** £9.95 **Supplier** Mind Games Liberty House 222 Regent St, London W1R 7DB

Program *Gods and Heroes* **Type** Arcade **Micro** Commodore 64 **Price** £4.95 **Supplier** Alpha Omega 9 Kings Yard, Carpenters Road, London E15 2HD

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New Releases

Program *Money Manager* **Type** Utility **Micro** PCW 8256/8512 **Price** £29 95 **Supplier** Advance 17 Staple Tye, Harlow Essex CM18 7LX

Plus 4/C 16

Program *Trizons* **Type** Arcade **Price** £1 99 **Supplier** Bubble Bus software 87 High St Tonbridge, Kent, TN9 1RX

Program *King Size* **Type** Compilation **Micro** C16/Plus 4 **Price** £8 95 **Supplier** Robtec Unit 4 Isleworth Business Complex St Johns Road, Isleworth, Middx

Program *Turbo Tape* **Type** Utility **Micro** C16/Plus 4 **Price** £4 95 **Supplier** Robtec, Unit 4 Isleworth Business Complex St Johns Road Isleworth Middx

Spectrum

Program *Arcade Creator* **Type** Utility **Micro** Spectrum **Price** £14 95 **Supplier** Argus Press Software Liberty House, 222 Regent St, London W1R 3AB

Program *Bobby Bearing* **Type** Arcade **Micro** Spectrum **Price** £7 95 **Supplier** The Edge 31 Maiden Lane, Convent Garden London WC2E 8LH

Having seen the pre-pre production versions of Bobby Bearing I was hoping for a super-smooth *Marble Madness*/*Spindizzy* type of affair I was disappointed

Bobby is, despite the inovative programming techniques used in the writing – and believe me Curvispace 3D is impressive – despite all that, for me Bobby is dull Whereas Spindizzy is both a test of arcade reflexes, mapping and puzzle solving, this game may be strong on the last two – but doesn't even allow you to fall over the edges of the beautifully contoured landscapes Still if you want to see a nice bit of programming, check it out One note of warning though the joystick option won't give a Ram Turbo interface so if you're the kind who's welded youre to the expansion port tough luck

Program *Pyracurse* **Type** Arcade **Micro** Spectrum **Price** £9 95 **Supplier** Hewson, Hewson House 56b Milton Trading Estate, Milton, Abingdon Oxon, OX14 4RX.

Program *The Writer* **Type** Utility **Micro** Spectrum **Price** £14 95 **Supplier** Softechnics, 12/13 Henrietta St, Covent Garden, London WC2E 8LH

Program *Dekorating Blues* **Type** Arcade **Micro** Spectrum **Price** £1 95 **Supplier** Alpha Omega, 9 Kings Yard Carpenters Road London E15 2HD

Program *Summer Santa* **Type** Arcade **Micro** Spectrum **Price** £1 99 **Supplier** Alpha Omega 9 Kings Yard Carpenters Road London E15 2HD

Spectrum 128

Program *The Writer* (128 version) **Type** Utility **Micro** Spectrum 128 **Price** £17 95 **Supplier** Softechnics, 12/13 Henrietta St Covent Garden, London WC2E 8LH

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Program *Peintre* **Type** Utility **Micro** QL **Price** £? **Supplier** Remo Promotions 28 Waverley Grove London N3

Program *Nucleon* **Type** Utility **Micro** QL **Price** £? **Supplier** Remo Promotions, 28 Waverley Grove, London N3



Charts

Top Twenty

1	(7)	Green Beret	Imagine
2	(–)	Ghosts and Goblins	Elite
3	(2)	World Cup Carnival	US Gold
4	(5)	Kik Start	Mastertronic
5	(4)	Formula One Simulator	Mastertronic
6	(9)	Street Olympics	Mastertronic
7	(8)	Biggles	Mirrorsoft
8	(3)	Way of the Tiger	Gremlin Graphics
9	(1)	Silent Service	Microprose/US Gold
10	(6)	Fingers Malone	Mastertronic
11	(12)	Thrust	Firebird
12	(13)	Knight Tyme	Mastertronic
13	(10)	Commando	Elite
14	(30)	Last V8	Mastertronic
15	(25)	Bump Set Spike	Mastertronic
16	(14)	Kane	Mastertronic
17	(16)	Spindizzy	Electric Dreams
18	(23)	Ninja Master	Firebird
19	(11)	Batman	Ocean
20	(26)	Vegas Jackpot	Mastertronic

Ghosts and Goblins

Biggles

Top Tens

All figures sampled by Gallup/Microscope

Amstrad

1	(–)	Biggles	(Mirrorsoft)
2	(1)	Kane	(Mastertronic)
3	(2)	Green Beret	(Imagine)
4	(–)	Classic Invaders	(Bubble Bus)
5	(–)	Kung Fu Master	(US Gold)
6	(4)	Radzone	(Mastertronic)
7	(3)	Batman	(Ocean)
8	(7)	TSAM (2)	(Hit Squad)
9	(10)	Formula 1 Simulator	(M'tronic)
10	RE	Turbo Esprit	(Durell)

Batman

Commodore 64

1	(–)	Green Beret	(Imagine)
2	(1)	Silent Service	(M'prose/US G'd)
3	(3)	Thrust	(Firebird)
4	(2)	Way of the Tiger	(Gr'lin Grap cs)
5	(7)	Bump Set Spike	(Mastertronic)
6	(10)	Golf Construction Set	(Ariolasoft)
7	(4)	Nexus	(Nexus)
8	(–)	Video Poker	(Mastertronic)
9	(8)	World Cup Carnival	(US Gold)
10	(6)	Formula 1 Simulator	(M'tronic)

Atari

1	(1)	Kik Start	(Mastertronic)
2	(5)	Last V8	(Mastertronic)
3	(2)	Vegas Jackpot	(Mastertronic)
4	(6)	Action Biker	(Mastertronic)
5	(3)	Scooter	(Americana)
6	(8)	Other Fellow	(Americana)
7	(4)	New York City	(Americana)
8	(10)	Shamus	(Americana)
9	(9)	One Man & His Droid	(M'tronic)
10	RE	Arcade Classics	(Datasoft)

BBC

1	(2)	Tennis	(Bugbyte)
2	RT	Cosmic Battle Zone	(US Gold)
3	(–)	Star Force 7	(Bugbyte)
4	(5)	Winter Olympics	(Tynesoft)
5	(1)	Commando	(Elite)
6	(–)	Price Of Magik	(Level 9)
7	RT	Yie Ar Kung Fu	(Imagine)
8	RT	Bruce Lee	(US Gold)
9	RT	Jet Set Willy	(Software Project)
10	(3)	Karate Combat	(Superior)

Spectrum

1	(–)	Ghosts And Goblins	(Elite)
2	(1)	Knight Tyme	(Mastertronic)
3	(6)	World Cup Carnival	(US Gold)
4	(7)	Ninja Master	(Firebird)
5	(10)	Molecule Man	(Mastertronic)
6	(5)	Green Beret	(Imagine)
7	(4)	Batman	(Ocean)
8	RE	Shocking Fireman	(Mastertronic)
9	(–)	Conquest	(Mastertronic)
10	(9)	Quazatron	(Newsom Consultants)

NEXT WEEK

● Special Supplement

Next week the supplement focuses on the Amstrad range of machines including a full report on all the major products that were on display at the recent Amstrad Show, and a PCW chess challenge playing off two chess programs against each other. There will also be a wealth of information for the Amstrad business user.

● PLUS Language series

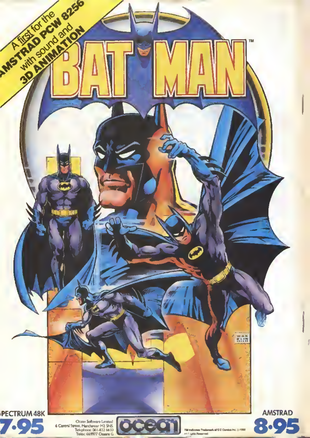
John Mawhood takes a look at MicroProlog, the micro version of the Prolog language, which is used widely for artificial intelligence applications.

Hardware

John Lettice looks at the Spectre comms pack, a combination of modem and Rom-based communications software for the Spectrum, featuring 1200/1200 1200/75 and 300/300 operation.

The Hackers


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